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INDIAN NOTES AND MONOGRAPHS



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AMERICAN ABORIGINES

A NATIVE COPPER CELT FROM ONTARIO

BY
ALANSON SKINNER

NEW YORK
MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION
1920

THIS series of INDIAN NOTES AND MONOGRAPHS is devoted primarily to the publication of the results of studies by members of the staff of the Museum of the American Indian, Heye Foundation, and is uniform with HISPANIC NOTES AND MONOGRAPHS, published by the Hispanic Society of America, with which organization this Museum is in cordial coöperation.

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INDIAN NOTES AND MONOGRAPHS



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BY
DONALD A. CADZOW

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MUSEUM OF THE AMERICAN INDIAN
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INDIAN HOUSES OF PUGET SOUND

BY

**T. T. WATERMAN
AND
RUTH GREINER**

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INDIAN NOTES

INDIAN HOUSES OF PUGET SOUND

By T. T. WATERMAN AND
RUTH GREINER

INTRODUCTION

N the various works dealing with Indian groups of the Puget Sound region, passages referring to the structure of houses are often markedly inconsistent. Indian informants, furthermore, on direct inquiry, supply quite contradictory information.

The explanation seems to be that in this area several forms of dwelling-house were simultaneously in use. Each informant accordingly describes in conversation the particular structure which lingers most clearly in his memory, the one, presumably, which his own family

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used. Of the various forms of houses, one seems to have been limited strictly to the neighborhood about Puget sound; there seems to be no mention of it in other regions. This particular form has never been fully described.

The purpose of the present paper is to outline the principal features of the houses used about Puget sound, and to discuss the distribution of the three forms. The paper is based on what is said about houses in the various printed works which refer to the Puget Sound people, and on inquiry made among the Indians, the latter work being provided for by the University of Washington. Mr Arthur C. Ballard, of Auburn, Washington, handed over to the present authors part of a very considerable body of material recorded by himself in the course of studies among the Indians, for the purpose of comparing results with those obtained by recent inquiry. The present paper is accordingly the result of a three-sided investigation.

The only recognizable structural parts

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of Puget Sound houses which have been permanently preserved are, it seems, some roof-planks recently obtained for the Museum of the American Indian, Heye Foundation. If still other portions of houses have been preserved, so much the better. Not a single house is standing at present; and the best example which ever stood in the vicinity of Seattle was destroyed many years ago by employees of the Indian Office.

Broadly speaking, there were three forms of permanent houses in use in the area under consideration. One form was an affair with a gabled roof, built, according to Curtis,¹ only for very wealthy men. The second form of house had what might be called a "shed-roof," with a single pitch. Structures of this second type were very large and quite elaborate. The fact that they had a "shed" roof does not by any means imply that they were makeshift or temporary. The third form had a central roof, almost flat, with lean-to's added, producing an effect suggesting the

"hip" or "gambrel" roofs of European structures.

THE "GABLED" HOUSE

In this type of structure wall-planks and roof-planks are said to have extended horizontally, the plank nearest the crest of the roof being propped up to form an exit for the smoke. Denny reproduces an illustration of questionable value showing a gabled structure as one type of Indian house.² Her picture indicates vertical wall- and roof-boards. Little else has been said about this form of dwelling, so far as the Puget Sound region is concerned. A good deal of information, however, is available about similar houses in neighboring areas. Among the tribes to the south and west of the sound (the Quinault, Chehalis, Chinook, Clatsop, Wishram), houses of the same type have the following features: There is one ridge-pole in the center, and a doorway consisting of an oval or a circular hole cut through a plank, in the end of the structure, which is built "end-

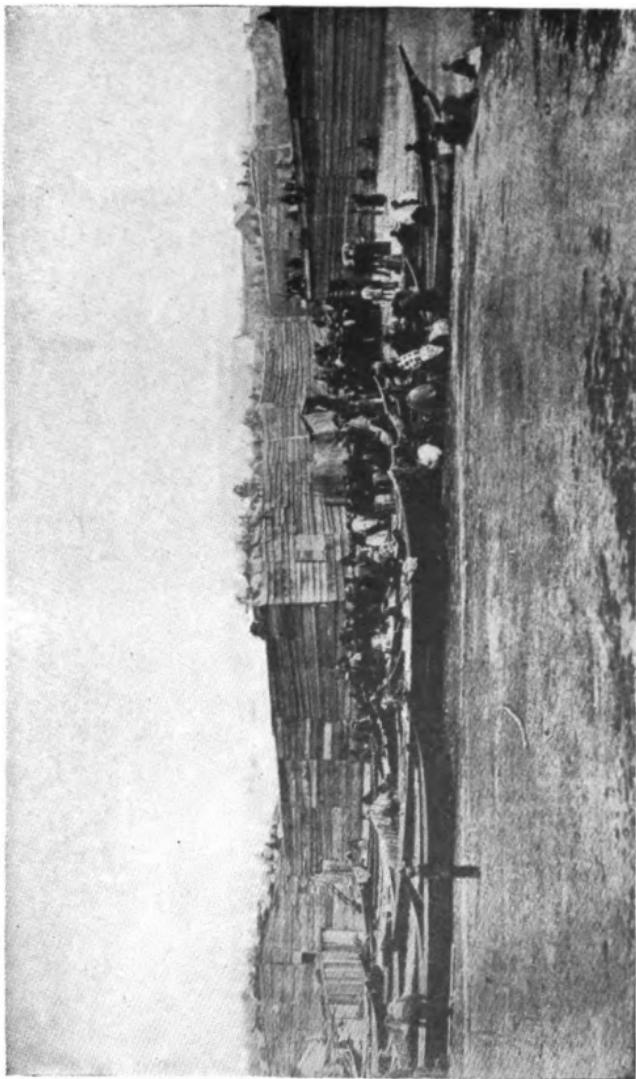
INDIAN NOTES

on" to the water.³ The wall- and roof-planks are sometimes placed vertically, and sometimes (if Mrs Victor is correct⁴) horizontally. Most authors describe them as vertical.⁵ Bancroft makes the apparently reasonable remark that usage varied.⁶ In at least one case the wall-planks were vertical and the roof-planks horizontal. This is clearly described by Swan for the Chinook.⁷ Where the wall-planks are horizontal, they are held in place by being lashed between two vertical poles. In the region farther to the south, again, wall-planks are invariably vertical and the roof-planks are placed at right angles to the ridge-pole. It would be much more satisfactory for purposes of description if the Indians of this area had limited themselves to one method of disposing their wall- and roof-boards. We must dismiss this particular matter, however, by saying with Bancroft that in the area we are discussing usage was apparently not uniform. This certainly applies to Puget sound, and explains some contradictory notes supplied by Indian informants.

A feature of some importance in Indian houses is the presence of a pit. From the Columbia river southward, gabled houses invariably contain such pits. Lewis and Clark say that the Chinook house has an excavation 4 ft. deep. Mrs Victor puts it at 3 ft., while Bancroft says 4 or 5 ft., and Washington Irving, 6 ft.⁸ Mrs Victor and Irving mention a ladder by which the visitor reached the bottom of the pit. Inquiries indicate that around the Sound houses also contained pits, though the printed sources on the Sound area say little of this feature.

Such facts would suggest that the *gabled* structure found on Puget sound is similar to a form of habitation which has a very wide distribution to the southward. The size of all houses diminishes rapidly as we go in that southerly direction toward the tribes of Oregon and California. On the Columbia river, for example, according to Bancroft, they measured 25 by 75 ft. In northern California the largest gabled houses are not more than 18 by 32 ft. This would

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“SHED” AND “GABLED” HOUSES OF THE NORTHERN SALISH
(From Hill-Tout, “British North America,” pl. x)

raise the inference that the source for the distribution of such houses lies somewhere in the north. Such gabled forms seem not to exist in the area immediately north of Puget sound. On the coast of Washington, gabled houses are not mentioned north of the Quinault. There they are completely supplanted by another form of structure. They do not reappear until we come to the Comox on the eastern side of Vancouver island. Hill-Tout's photographs show the "shed" and "gable" forms standing side by side among the Salish of the British Columbia coast (pl. i). Concerning the distribution of gabled houses, then, it must be noted that they are found in two areas, one of which includes Puget sound and extends southward to California, while the other area extends from the Comox northward for a considerable distance; as a matter of fact, to Prince William sound, Alaska. The appearance of one of these gabled structures standing in southern British Columbia is shown in pl. ii. The Puget Sound house was much smaller than this.

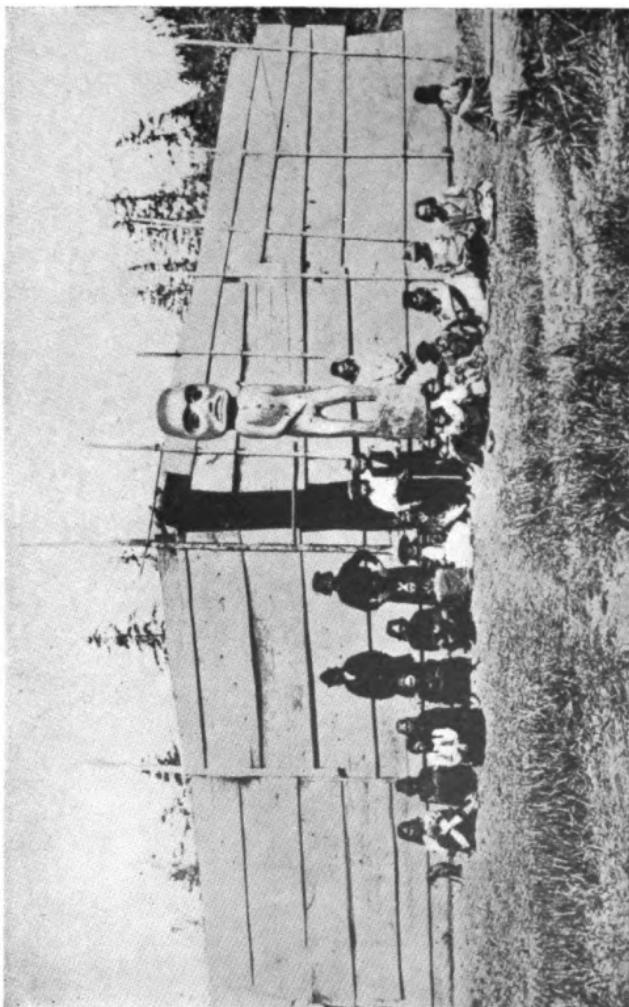
AND MONOGRAPHS

THE "SHED" HOUSE

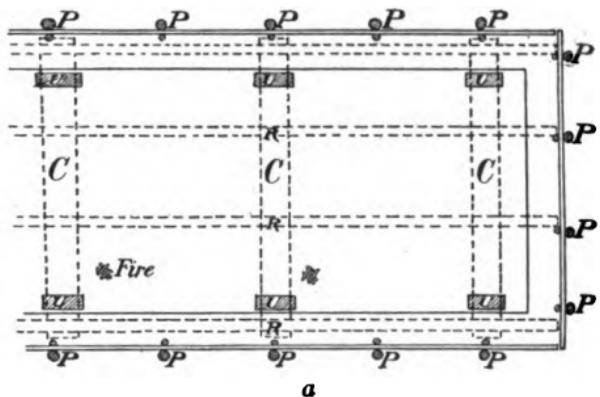
This form seems to have been much more common on Puget sound than was the preceding type. It is referred to by Gibbs⁹ as *the* type characteristic of the Puget Sound "tribes." The "shed" house was also employed by the Quilliute and Makah on the coast of Washington. To the northward the use of this form extended over the entire west coast of Vancouver island, up the east coast to the Comox (as just remarked), and over the mainland of southern British Columbia.¹⁰ Boas^{10a} has given a complete account of this form of structure as found among the LkúñgEn, or Songish, near Victoria, B. C., with a diagram of the separate beams, here reproduced as fig. 1. Captain Cook, in his Voyages, has a verbal description of those viewed by him at Nootka sound in April, 1778.¹¹ Other authorities, such as Myron Eells, Swan, Simon Fraser, and Jewitt,¹² report such structures briefly, while Curtis¹³ has a more systematic description.

The principal peculiarity of these struc-

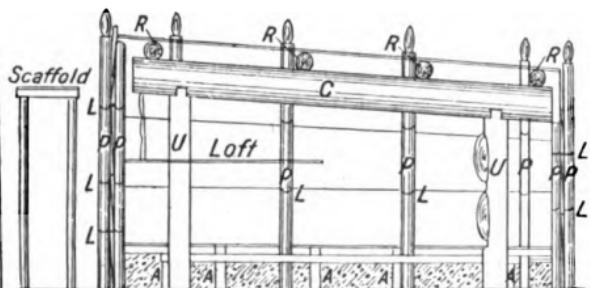
INDIAN NOTES



"GAILED" HOUSE OF THE NORTHERN SALISH
(From Hill-Tout, "British North America," pl. IX)



a



b

FIG. 1.—(a) Diagram showing the construction of a "shed" house. (b) Section of house. After Boas. (c, cross-beams; u, uprights; r, rafters; p, poles; l, ropes of cedar-branches which pass through holes in the boards and are tied around the poles).

tures is that they have a flat roof, with a single "pitch." Myron Eells describes this form of structure with the cryptogrammic phrase, "house with the roof wholly on one side."¹⁴ The appearance of a house similar to the Puget Sound form is shown in an excellent photograph published by Hill-Tout¹⁵ and here reproduced (pl. 1). On Puget sound the roof slopes to the rear. Both Boas and Captain Cook say that the British Columbia house slopes from the rear toward the front.

A noteworthy point concerning this type of house is the prodigious size which it sometimes attains. An example of this type of structure, modified in certain respects, stood for many years on the shore of the sound opposite Seattle, at the Port Madison Indian reservation. Some of the local historians tell astounding stories of its length. Carlson, writing in a Bulletin of the University of Washington, History Series,¹⁶ gives its length as "900 feet." Costello, in a locally published book,¹⁷ extends the length to 1,000

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ft. Such dimensions for this particular building seem to be quite fanciful. Gibbs, whose monograph is the standard work on the Puget Sound Indians (which monograph, by the way, the local writers seem to have overlooked), gives the length of this structure as 520 ft. In these figures he quotes Goldsborough, who went inside the edifice in 1855, while the framework was still standing, and took measurements of all the important beams.¹⁸ Farther north, however, houses attaining the dimensions cited seem to have real existence. Simon Fraser saw what was apparently one of these structures standing on the river which bears his name, and says that it was 646 ft. in length and 60 ft. in width, "all under one roof."¹⁹ At the mouth of the river he saw a "fort" 1,500 ft. long and 90 ft. broad. It is not certain what the form of the structure was. Possibly it was not a house, but an inclosure. Hill-Tout says that he himself knows of a house more than 1,000 ft. in length.²⁰ Such gigantic structures are, of course, com-

munal dwellings, as were apparently all plank-houses of the entire region.

This "shed" form of house seems always to have been built facing the water, its long sides parallel to the beach line. In some cases a number of exits were provided. The front wall was from 10 to 18 ft. high, and the rear wall somewhat lower, but always greater than the height of a man. The great width which these structures had (40 ft. or more), had the effect of giving the roof a very gentle pitch. Such a low roof-slope is somewhat characteristic of the houses built by the Indians even today (see pl. VIII). Hill-Tout remarks that it was impracticable to make walls of any structure very tall, because it was too difficult to lift to great heights those colossal beams which Indian usage favored for all buildings. Some of these beams were 2 ft. in diameter and 60 ft. long. A low front wall has as a natural result a roof that is somewhat flat. This level roof-space was commonly utilized for drying fish, and for other purposes. Pl. I, for example, shows a

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scene at a "potlatch," in which the roof of one of these "shed" houses is lined with the spectators and with piles of blankets, the latter intended for distribution. Swan conjectures that the roof is made flat for the express purpose of drying halibut, but this explanation seems very improbable.

There is some uncertainty as to whether all these "shed" houses were constructed over "pits" or excavations. Some of them certainly had pits. Curtis states for the region of Puget sound that the house had a central excavation. In the case of such elongate structures as these buildings, this excavation assumes the form of a wide, shallow trench extending down the length of the dwelling.²¹ This excavation was only a foot deep. Myron Eells supplies corroboration on the presence of a pit.²² Other authorities, however, are silent on the matter. The native structures for hundreds of miles to the south and north of the area we are discussing were provided with excavations, as stated by all authorities.²³ It

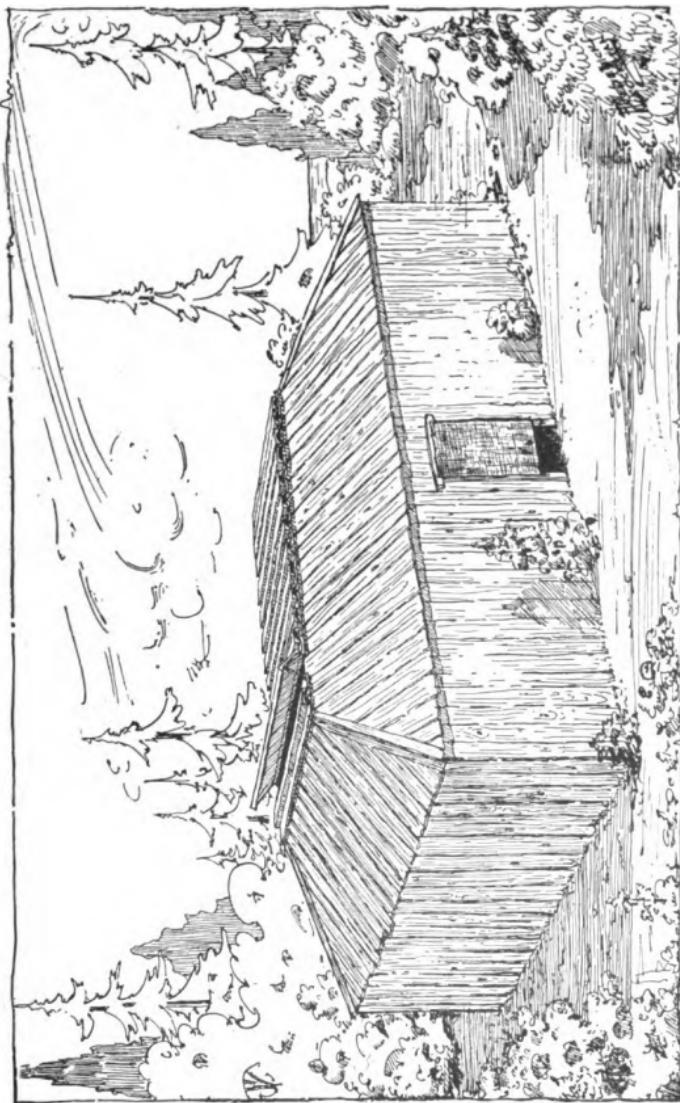
seems probable that these great "shed-houses" also had pits, at least typically.

Myron Eells is authority for the statement that this "shed" form was the oldest style of structure about Puget sound, and the one most commonly used in aboriginal days.²⁴

THE GAMBREL OR "LEAN-TO" FORM

On Puget sound a special form of structure was developed, differing in certain respects from both of those mentioned. We may perhaps speak of this as the third style of dwelling. In *most* points of construction such houses are identical with the type just discussed. A new and characteristic feature is a kind of addition to the structure, in the form of a "lean-to," which was always added to the rear of the building, and sometimes extended clear around it, on all four sides. Thus is produced a structure of curious form, which is not known to have been described in any other locality. Myron Eells in a brief note²⁵ refers to such a structure, styling it the "*flat-roofed* dwel-

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SKETCH SHOWING THE APPEARANCE OF THE "GAMBREL" OR LEAN-TO FORM, OF PUGET SOUND

ling house." He says in effect that the roof is composed of two parts: (1) a part made of "clapboards," which generally has a steep pitch; (2) another part made of "long boards." It is this part made of "long boards" which is flat. The relation of the two parts is indicated by an illustration in a book by Miss Denny called *Blazing the Way*.²⁶ This picture, which is apparently a composite, having the background (and possibly the houses) brushed in, is too poor to reproduce. The sketch herewith (pl. III) is based on a model of such a house made many years ago by a middle-aged Duwamish, Peter Rodgers (now deceased), plus some dimensions supplied orally by native informants, particularly by Mr Joe George and Mr Sam Wilson, of Port Madison reservation. Such houses varied greatly in size. The sketch represents one of moderate dimensions.

The principal feature of the structure is a central section of roof which is *almost* flat. This part is upheld by a very heavy framework, and is covered over with wide

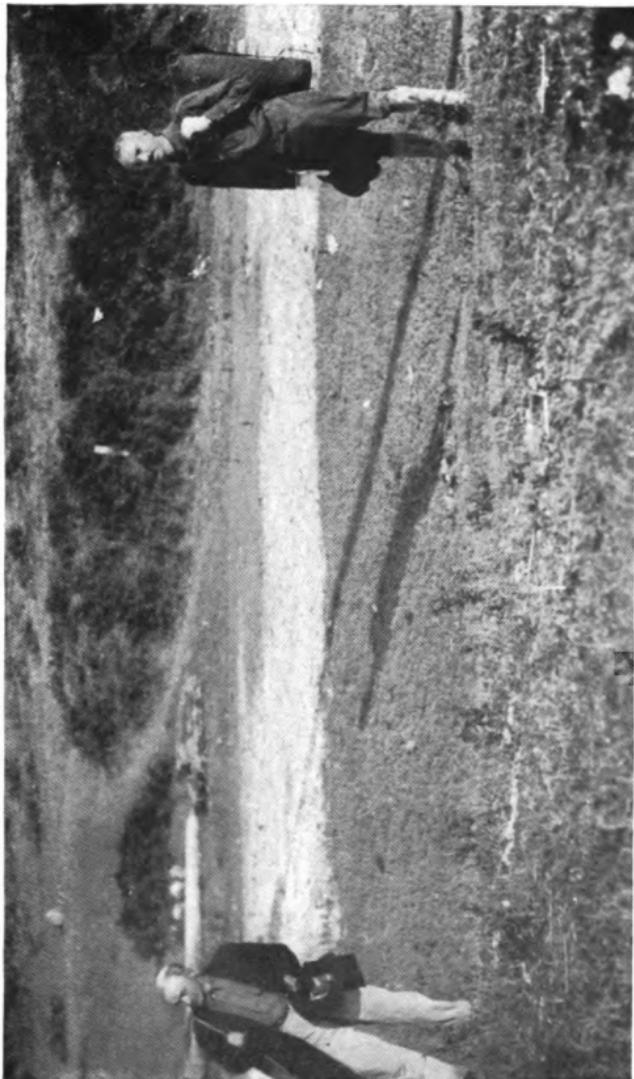
and very long planks. Around this central structure is a steep "shed-roof" of ordinary flat planks ("clapboards," to quote Eells), very "cheap" and short. The steep pitch helps to carry off the water, making unnecessary the use of the more elaborate style of planks. This lean-to was lined, wall and ceiling, according to some informants, with matting, which helped to exclude the weather.

A number of conflicting statements came to light in making inquiry about this type of house. For example, some informants said the roof-planks ran lengthwise of the structure, others said they were crosswise; some said the pitch was toward the rear, others that it was toward one end. The explanation finally supplied was of course a simple one. The pitch of the roof was "away from the rain," which in this region comes mostly from the south. If in a given instance the house faced another quarter, the pitch of the roof was adjusted accordingly. In some cases the "flat" roof sloped slightly from the middle both ways.

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SITE OF "OLD MAN HOUSE," SUQUAMISH



ALL THAT REMAINS OF THE HOUSE-POSTS OF "OLD MAN HOUSE"

The persons in the photograph are standing on the butts of two adjacent house-posts, which have been cut off at the ground level

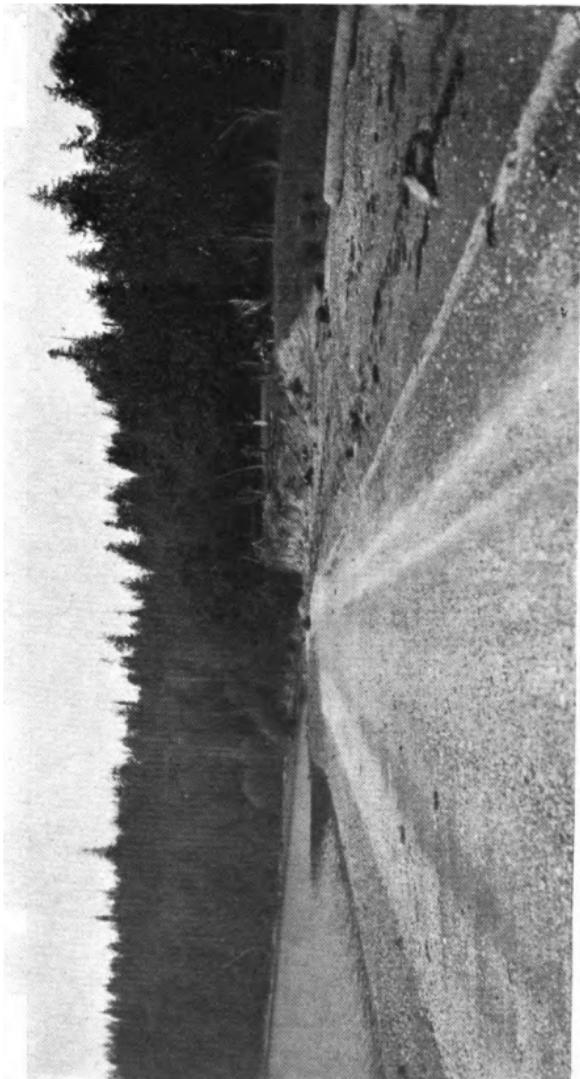
Contradictory statements were also made concerning the presence of a pit. Usage may have varied somewhat. In later times, especially, the pits may often have been omitted. Some of the houses, however, did have deep excavations. Moreover, it is a fact that in many of the old village-sites around the sound, the house-pits are still to be seen at the present day. The famous structure at "Old Man House," on Port Madison reservation, mentioned in every work which deals with this region,²⁷ had such an excavation, 5 ft. in depth, according to one informant. The remains of this pit are visible in pl. v. This structure also had a "lean-to," but only on its landward side. In some cases the pits were excavated to the full height of a man. No ladders for descending into the excavation are known to have existed. An inclined plane served for access. For further illustrations of the site of the "Old Man House," see pl. iv, vi.

NATIVE WORDS FOR VARIOUS TYPES OF HOUSES

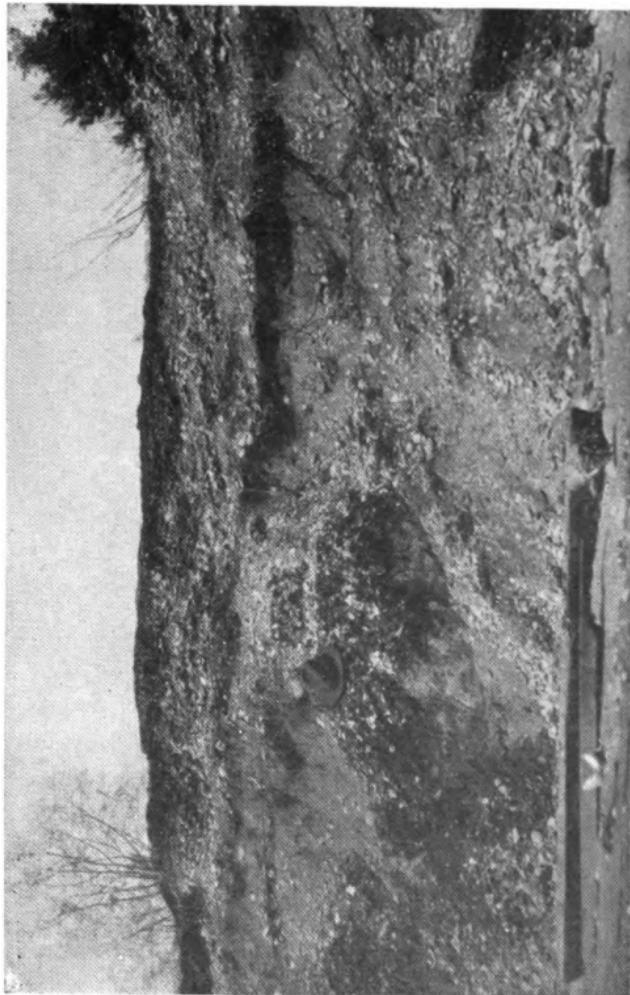
We are now ready to take up the Indian terms for "house." The word *alt* is used for all habitations of whatever material. Thus, a structure which is stripped bare inside and swept out in preparation for a "potlatch," is called *sgwi'gwi-alt*, "distribution-house."²⁸

Structures habitually used for such potlatches were referred to as *he'gwal'al*, "big houses." There were usually only one or two of these in a village, the poorer people accommodating themselves as best they could in a variety of "shacks." Gibbs says that these great houses were specially erected for festivals, and afterward dismantled.²⁹ It would be much nearer the truth to remark that they were built of permanent materials, but were often partially dismantled, and the planks used for temporary shelters, during the season when no festivals were in progress. A man "owned" the planks which were used to cover his appointed place in the big house. A temporary

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SCENE AT "OLD MAN HOUSE"
The photograph is taken from the site of the structure, looking south. On the small knoll is a shell-
heap. See pl. viii



SHELLHEAP NEAR "OLD MAN HOUSE"

The location is shown in pl. vi

shelter for summer is called *qwa'tak-alt^u*, "mat-house," or *xolai'tx^w*, "warm weather shelter." A dwelling of "white-man's" architecture is called *pΔ'sΔd-alt^u*, "Boston-house," *pΔ'sΔd* or *pa'sid* being the Indian pronunciation of the name of the New England metropolis. This term *alt^u* is used also in names for those places where mythical beings are supposed to live; for example, *xwiyaqwΔ'di-a'lt^u*, "Thunder his house."

The word for a permanent habitation of planks is *tΔ'sbΔd*, "cold-weather shelter," usually translated "winter-house." This term applies to the permanent habitation, whatever the style of architecture. A special form of it (not described) was called *kalasai'tx^w*. The planks were often carried off to form temporary camps. It is worth remembering that a few of these planks represented a fortune to the Indian. They were split with great care out of cedar logs, and this operation required both time and skill. Not everyone could do it successfully. The Puget Sound planks

were not extraordinarily large, three feet being a maximum width. At Cape Flattery they were sometimes five feet wide, and more. The Ferry Museum of Tacoma has some splendid specimens on display, which are fully that wide. Even a narrow plank, however, was a treasure. Poor people often did not have a plank to shelter themselves with. In moving about, the heavy planks were laid across two canoes, forming a platform, upon which the other effects could be piled. In the warm season the big houses were often deserted, the people being at distant places where a large supply of food was at the moment obtainable, either salmon and other fish, or bulbs and berries. This accounts for the remark made by Vancouver that most of the villages seemed to have been abandoned. He conjectured³⁰ that prior to his visit there must have been a pestilence. "Honeymooners" and the younger couples generally camped about, here and there, and occupied quarters in the larger houses only at the time of potlatches or other gatherings.

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CONSTRUCTION OF THE HOUSE

The following is an account of how the house was constructed, step by step. The figures in parentheses refer to a list of native terms given on a later page.

A row of tall uprights (1) were planted in the ground, some 12 or 14 ft. apart (see pl. VIII). In rear of them a parallel row of somewhat shorter posts was set, distant some 25 or 50 ft. from the first row, according to the size of the house. These uprights were like very heavy planks. Often they were more than 3 ft. wide and 8 in. in thickness. The inner surface of these posts often bore a figure from 3 to 5 ft. long, carved in relief. Present-day informants often refer to these carvings as "totems." It is worth remarking that they were quite another sort of thing from the totemic crests of the tribes of northern British Columbia and Alaska. Snakes, fish, lizards, sea-mammals, and human figures were delineated in these carvings, but with nothing of the peculiar "style" which is so characteristic of art farther north. The design in each case

represented the owner's supernatural helper, and was not a family crest. The matter of obtaining these "helpers" was part of an adolescence complex, with many interesting features which cannot be discussed here. Inside of such a house, the space between two posts was the especial bailiwick of one man and his family. The figure of the supernatural helper was often set up alongside this "compartment," and seems to have been looked upon in a sense, and utilized, as a symbol of ownership.

The principal task in erecting the house was to lift into place certain great rafters (2) which extended from front to rear of the house, resting on uprights. These rafters in the big structure at Port Madison reservation were 60 ft. long and 17 in. through at the butt. The framework of the house, then, consisted of a series of bents, independent of each other, each bent consisting of two "uprights" supporting a slanting "rafter." The rafter had "shoulders" at each end, so as to set firmly on the uprights. Lighter beams or

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FRAMEWORK OF AN INDIAN HOUSE ON A SANDSPIT TWO MILES SOUTH OF THE SHELLHEAP (PL. VII)

stringers were now placed lengthwise of the house, resting on top of the rafters. These would be called "sheeting" by a civilized carpenter. The stringer running along the eaves at the front of the house (3) was larger than the one for the rear (4). There were three or more rows of these longitudinal beams, depending on the width of the roof. They were the immediate support of the roof-planks. These roof-planks (5, 6) were quite elaborately wrought. They were split from cedar trees, in such a way that the edges were raised. They were made in two varieties, one kind having a deep trough (5) and the others a shallow one (6). Each kind had a special name. They were placed on the roof in two layers. In the lower layer the deeply-troughed planks were employed, and were placed with the trough upward, with enough longitudinal pitch so that the rain-water drained down their length. Over the cracks between those planks were placed other and shallower planks, in reverse position, that is to say, with the trough

downward. The whole arrangement had a general resemblance to tiling. The two kinds of planks may be seen in fig. 2.

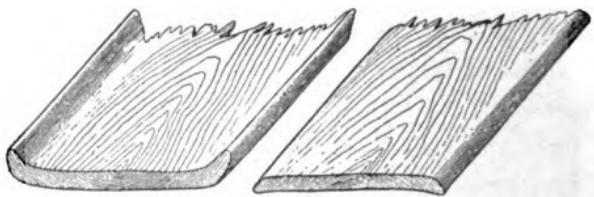


FIG. 2.—Two types of roof-planks.

These roof-boards were held in place in some cases by being weighted with stones. In better houses a strip (7) was laid along a row of boards, just over one of the longitudinal plates. Holes were bored through the planks, and a cedar withe (8) was passed through these holes and around the rafter below. These boards were carefully treasured. The manufacture, as mentioned above, was a tedious and somewhat difficult process. After the planks were split from the log, they were scraped down with a sharp musselshell, and, in the case of fine specimens, rubbed with "sandpaper" consist-

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ing of a piece of dog-fish skin. Where knot-holes existed in such planks, the carpenter sometimes made channels which would carry the water around them, instead of letting it drip through. In other cases the hole was covered with a "patch" (9), consisting of a clamshell. This shell was filled with blue clay, and then slapped down over the hole. When the mud dried the shell was held fast in its position. Planks which became cracked were carefully repaired. A row of perforations was made on each side of the crack, which was filled with pitch, and drawn together with lashings of twisted cedar-twigs. Pitch (10) for this purpose has a special name. They sometimes filled a crack with long splinters (11) so that the pitch would not drip through. After the resin hardened, the crack sometimes opened again, in which case they heated the end of a hard stick (12) and rubbed it in the crack to melt the pitch and fill the crack again.

In cases where a "lean-to" (13) was added, the additional roof had a very

steep pitch, and was made of "ordinary" planks (14), without the upturned edges. Eells applies to such "ordinary" planks the term "clapboards." These boards were fastened to the "plate" which ran horizontally along the house at the eaves, with ironwood pegs. As already mentioned, the walls consisted sometimes of vertical and sometimes of horizontal planks. Informants consulted near Seattle were more familiar with an arrangement which they described as follows: Boards (15) were put as close together as possible to compose the walls, standing vertically. Over the cracks various odd pieces were placed as battens (16), then a long strip (17) was run the length of the house on the outside just under the eaves to hold these upright boards in place. It fitted up under the ends of the roof-boards, and was lashed at intervals to the "plate." Where a high wall existed, several such strips were used, at different levels. The wall-planks varied a good deal in thickness. The strip held the thick ones, but thinner ones would be left

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loose and rattling about. Wedges (18) in that case were driven up under the strip to give it a "purchase," or "bearing," on the loose elements.

When the wall-planks ran horizontally, a different style of fastening was, of course, required. This has been described by other writers. The essential matter is that upright poles (19) were set up and the planks stood on edge, one above another, between this pole and the house-frame (fig. 1, *b*). Each plank was held in a sling made of cedar withes, in such a way that it overlapped the next plank, excluding the weather.

The main doorway (20) consisted of two uprights, with a heavy cross-piece, or lintel (21). The top of this lintel had a channel or groove. Into this groove fitted the lower end of the vertical wall-planks. Various other openings (22) were provided, depending on the size of the house. There was always a "back door" (23) leading into the forest. At the time of an attack, this back door, which led directly into the brush and the heavy

timber, was a very popular exit. The enemy, in trying to place a guard at this back door in advance, to prevent escapes, often gave alarm and put the household on the alert.

The whole matter of doorways offers some features of interest. Cook says that the houses he saw at Nootka sound in 1778 had no doorways, properly speaking. There were what seemed to be irregular and chance apertures here and there, through which the Indians passed in and out. The houses described to us on Puget sound and portrayed in the literature had quite elaborate entrances. It may well be believed that Indian houses in this region rapidly became more elaborate after the introduction of iron tools, which made woodworking easy and rapid. It is accordingly possible that the elaborate entrances described by recent Indians are not really aboriginal. The "Old Man House" at Port Madison reservation had a kind of a maze through which the visitor entered, consisting of a series of parallel walls partly uncovering

each other, around the flanks of which the visitor had to pass. In a dark place was a pit. The theory was that an enemy coming into the house, and being unfamiliar with it, would fall in this hole. Every well-built house was provided with a kind of hallway (24) formed by partitions (25) extending back into the house at each side of the entrance. This is said to have been for defense against enemies, but its military usefulness is hardly apparent. One of these houses, if once invested by a hostile force, could be defended only with difficulty. The enemy was as well off in any case as the people inside, and he could at any moment set the place on fire. The partition was more likely devised to exclude the cold wind. In aboriginal times there was nothing to close the aperture except a cedar-bark mat (26), and some kind of an additional windbreak would have been a great advantage. In more modern times heavy plank doors with iron hinges were hung at both ends of this hallway.

The interior arrangements of such a

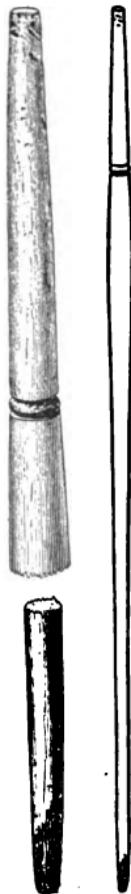
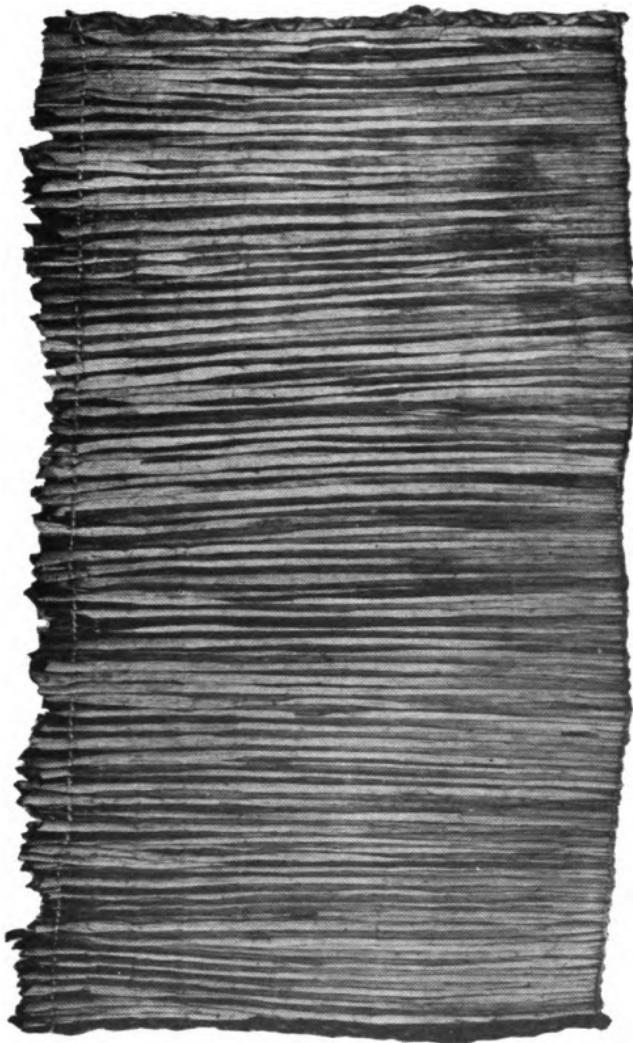


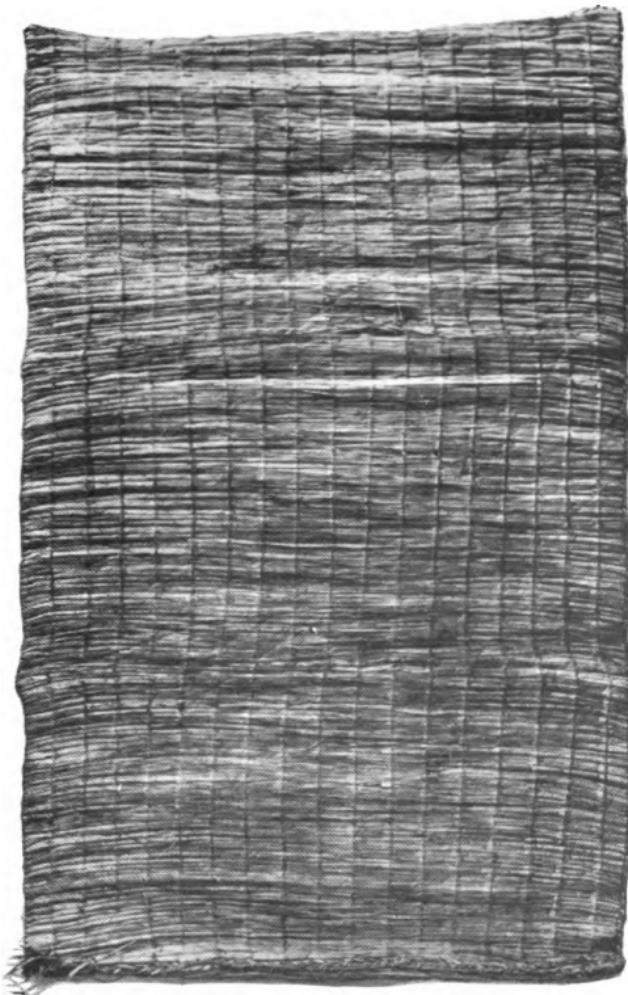
FIG. 3.—
Pole for drumming on the roof-boards.

house depended on its size. Where occupied by several families, there was more than one fire. Each fireplace (27) had a big back-log (28). When the fire was kindled, someone would send a small boy up on the roof to prop up the edge of a plank with a pair of small struts (29). This made an exit (30) for the smoke. If no boy were at hand, they used a long pole to move the planks about, such poles being kept for the purpose (fig. 3). During ceremonial performances similar poles, quite elaborately ornamented, were carried by performers. Holding these poles (31) upright they "drummed" by punching them vertically against the roof-planks (fig. 2). For the ordinary fire, bark was the principal fuel, because it made little smoke.



ORDINARY MAT USED AS A WALL COVERING

(Size, 2 ft. 9 in. by 4 ft. 9 in.)



SLEEPING MAT

(Size, 3 ft. 9 in. by 6 ft. 1¼ in.)

Numerous other features were constant in all these houses. The walls were lined with ordinary mats (32) of cattail rushes, which were utilized not only in this way, but for a variety of other purposes. They consist of rushes which are placed horizontally and held together by a vertical warp of twine made of fibers split from rushes (pl. ix). Around the wall extended a platform (33) for beds. This was $3\frac{1}{2}$ or 4 ft. wide,³¹ and the occupants lay with their sides to the fire. Thick and very springy mats (34), made of cattails especially for the purpose, were spread for the sleepers on the planks (pl. x), and another mat was usually rolled up to form a pillow. There were no partitions between the cubicles of different families. Underneath the bed-platform, which was a foot or more from the ground, various pieces of property were stored. Above the bed-platform and extending completely around the house was a shelf (35), about three feet wide, made of small poles. This shelf was suspended from the rafters, and pos-

sessions endless in variety were stored upon it.

From the native standpoint the center and soul of the house was a great rack for drying fish. Cross-pieces (36) were extended from the one side of the house to the other, at the level of the lower eaves. The cross-piece rested at the rear of the house upon the lowest log of the "sheeting," while its other end was supported by withes from the roof. Poles (37) were then laid lengthwise of the house, about 16 in. apart, resting on these cross-pieces. Salmon brought in by the fishermen were cut open and the backbone taken out. They were then skewered through their tails with a stick (38). The "stick" of fish was then laid across between two of the longitudinal poles, and the fish left to cure in the smoke. This lower rack (39) just described was only for fresh fish. A higher rack (40) was used in a similar way for curing the backbones, which did not need to be so heavily smoked. Further aloft still, was a third rack (41), for salmon which were

half-cured. Thoroughly cured fish were removed from over the fire and placed in special racks (42) for preservation.

A narrow strip of wood was suspended by withes some 4 or 5 ft. (43) below the drying frame. On this were hung pieces of meat or fish which were intended to be used at once. Hung from this pole was a "towel" (44) of shredded cedar-bark, used for wiping the fingers.

The house-pit (45) contained all the hearth fires. Descent from the outer ground level into this excavation was either by a sloping ramp or a flight of steps (46).

NATIVE TERMS FOR THE PARTS OF THE HOUSE

The native terms appear in the following list in the order in which they are mentioned above.

Structural Parts

1. Uprights, *sqw'a'lad*.

For the house front, *ta'dzus*.

For the rear wall, *kwa'datc*.

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2. Sloping rafters, running from front to rear, to carry the roof-boards, *dΔdja'-lad^{xu}*, *ta'clabado*.
3. At the front of the house, *qwa''-abadi*.
4. At the middle and rear, *t'a'lusid*.
5. Roof-planks with deep "trough," *tL'pa'lad^{xu}*.
6. Roof-planks with shallow "trough," *sqa'lad^{xu}*.
7. Strip which holds the roof-planks in place, *ta'tsΔgwΔs* (= two things that bump together).
8. With of twisted cedar-limb, fastening this strip to the rafter below, *sti'dagwΔt*.
9. Patch for a knot-hole, consisting of a clamshell, fastened with clay, *stΔq^w-a'l^tu* (= patch-house).
10. Resin for closing up a seam, *stΔq^w-a'lap-kwa'l^tu* (= patch-house-resin).
11. Splinters for closing a crack, *euxteistid* (= pitch-spreaders; daubers).
12. Stick, heated and used for melting resin in a crack, *sΔx^utel'L^tu* (= that which you rub with).

13. "Lean-to", with steep roof, *sxqwa'-datc* (= addition; something added on).

14. Ordinary boards, without raised edges; "clapboards," *qwa'datc-ala'd^{xu}* (= lean-to planks), *hwitsbala'd^{xu}* (= small covering piece). (cf. 5 and 6 above.)

15. Wall-boards, 12 or 14 in. wide, *spsa'dialad^{xu}* (= wall-boards).

16. Battens, *cutLa'la'lus* (= that which covers a crack).

17. Strip run under the eaves to hold the vertical planks in place, *sΔx^utLib-salad^{xu}* (= clamp; squeezer).

18. Wedge used to secure loose boards in place, *sΔx^utcqid* (= wedge).

19. Upright poles, used with horizontal wall-planks, *potskxwo'dad*.

20. Main doorway, *cΔgwuL*.

21. Lintel, *cqu'tsid*.

22. Additional opening, *cl'cgwuL* (diminutive of 20).

23. "Back" door, *uLda'tc*.

24. "Hallway" leading inward from the main door, *cΔgwula'di* (= door-at).

25. Partitions composing this hallway,

cΔx^udi'cutsid (= at the door it is split or divided).

26. Cedar-bark mat hung across the doorway, *cxu'Lotsid* (= that which one rubs against).

Interior Arrangements

27. Fireplace, *cxu'ded* (cf. *xūd*, fire).

28. Back-log, *dica'litcup* (= behind the fire).

29. Sticks or struts for propping up edge of roof-board, **uxca'lud^{zu}*.

30. Smoke-hole, *steo'xwe* (*st'eΔkwil* = smoke).

31. Long pole for moving roof-planks about, *tΔ'stūd*.

32. Mats used to line the walls, *cΔq'sdulitsa* (= lining).

33. Platform for beds, *lulwa''sid* (= resting-place).

34. Thick and very springy mats, used to sleep upon, *qot*.

35. Storage shelf above the bed-platform, *cqa'tΔd*, *cu'yaþ* (= where things are piled).

36. Cross-pieces to support the racks

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for drying fish, *ula'dtwad* (= salmon-for).

37. Lengthwise poles resting upon (36), *ca'lابid* (= things which one *pushes through* or *inserts*).

38. Stick upon which fish were skewered, *cut'Δ'lcid* (= things which keep something *open* or *spread*).

39. Rack for drying fresh fish, *Lpo'sali*.

40. Higher rack, for backbones, which were cured separately, *xa'xali* (*xako*, backbone).

41. Rack for half-dried salmon, *sihai'*.

42. Rack for cured salmon, *Lka'tΔd* (= where things are piled; cf. number 35 above).

43. Pole for fresh meat and fish for immediate use, *cubu'sΔd* (= for cooking).

44. "Towel" of shredded cedar-bark, *pas* (= wiper).

45. House-pit, *tca'a'ltu* (= dig-house).

46. Steps leading down into pit, *cu'l'ca*.

HOUSE-LIFE

Visitors who came to this region in early times spoke in terms of contempt of the native structures. They were full

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of cracks, and at the same time full of smoke. They were "ill-built," and in form they were skewed. Moreover, a good deal of dirt and confusion reigned within. The principal occupation on all hands was the curing of fish, and observers speak in wondering phrases concerning the odor that surrounded and permeated Indian establishments. The life of the Indians in many ways was hard, and their mode of existence was not ideal. On the other hand, the denunciatory remarks can be explained in large part as contempt felt by a people five-eighths civilized for people only half-civilized. There was a great deal in Indian life that was pleasant, and much in the relations of the Indians to each other that is pleasing.

For example, no child in an Indian household was ever struck, and no child was ever sent to school. Yet most children grew up to be disciplined members of society, and each of them developed into an excellent workman at some difficult trade. If any one did not, the

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chances are he starved to death. In addition to learning with great accuracy how to manufacture and manipulate complicated tools of the chase, certain modes of action were powerfully inculcated. Forms of behavior, in many respects as complicated as our own, were instilled, without the victim of the process being really aware of it.

We find that this sense of discipline appeared among even the youngest members of a household. Mothers used to explain to very young children the necessity of keeping still in emergencies—for example, during attacks by the enemy. Haida and "Stickeens" (Tsimshian) used to come down from the north on raids. When houses were suddenly assaulted, the people would try to get into the brush behind the village. "Mother can't carry you all," a woman would explain to her children, "so when I put you into any place that seems safe, stay there and be quiet until I come after you." When an emergency came, a child snatched at midnight from his dreams and pitched

headfirst into a blackberry bush would stay there without making a sound. The enemy often went about the outskirts of a captured village, calling in a sweet voice, "A-a-a-a-tL'a'xa-*qo*!" ("Come out, dear!") or "A'tL'aauLe!" ("All of you come out now!"), in order to capture children and make slaves of them. Youngsters were often on their guard against this, and would answer nobody unless called correctly by their own proper names. "Dear" or "little pet" might be said by anybody.

It is an interesting point that the iron-shod philosophy which made such things possible was bred into a child without any show of force or pressure. Children were often reproached for improprieties, but were never punished. The people around Seattle, living beside "salt water," had great contempt for the "fresh water" people of the rivers and lakes, who followed a different and somewhat simpler mode of life, and were "poor." "De'lul tce'-ux wa tiiLtul'aL Sqwaux!" "You are behaving like one of the Issaquah Creek

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Indians!" would be the reproach directed at a lazy or a careless youngster. One of the informants, a half-breed woman, inherited from her white father a narrow, high nose, with a marked notch where it met the forehead, very different from the true Indian nose, which is very low and broad at this point. Her "chest-bone" also jutted forward somewhat prominently. When she was a child, her mother, if seriously provoked, would address her as "*Ctcatas*" ("notchy!") or "*Tsudzi'gwΔs*" ("sticking out in front!"), instead of calling her by her proper name. "Well-bred" children would not help themselves to any kind of food from the store-house, especially if the older people were away. They always waited, sometimes in serious hunger, until the elders returned. There was always, of course, some riffraff and no-account people who "did not know how to bring up children correctly."

There was somewhat similar discipline also among the older people of the group. In the early morning the oldest man in a

house would take a light switch and go around smacking it against the walls. This was the signal, "everybody out!" Men and boys went into the water of the Sound for a bath, while women went up the creek. Nobody was exempt in this matter, not even children.

Many of the customs which we associate with "family" life were lacking altogether. Husband and wife never addressed each other by their proper names, saying simply "old man" or "old woman." A somewhat affectionate term was sometimes used, meaning "spouse." There was little privacy in the big houses. Families even shared hearth-fires in many cases. They reckoned kinship very closely, however, and the "better" families have even yet a strong feeling for the importance of genealogies. Their kinship terms have many interesting features: for example, brother addressed brother by one term, and sister addressing sister used the same term; while brother addressing sister used a different term. They also had a special set of terms

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which were used between relatives by affinity, after the connecting relative had died. Marriage was usually between people of separate establishments or separate groups. There was no tribal organization of any sort. So far as any social fabric existed, it was based on the family and the house-group.

DISTRIBUTION OF THE VARIOUS FORMS OF HOUSES

It is a striking fact that while the "shed" type of house is used about Puget sound and for some distance northward, it is replaced in the most northerly regions by a "gabled" form. Gabled houses of excellent construction are characteristic of all the tribes north of the Comox. The shed type is pretty closely identified with the Salish tribes, a fact already noted by Boas and Hill-Tout. From the Salish, apparently, it spread to their neighbors within the general area about Puget sound, such as the non-Salishan Nootka, Makah, Chimakum, and Quilliute. It looks very much as

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though this gabled house were an older form in this region, having apparently had at one time a very extended distribution along the coast, from Mount Saint Elias in Alaska to Humboldt bay in California. Along the whole stretch of coast included between these two extremes, we find rectangular plank-houses, with no interruption. At both ends of the area, moreover, these rectangular houses take the form of *gabled* structures with *paired* ridge-poles, *vertical* wall- and roof-planks, and an interior *pit* reached by a flight of steps. This is certainly a strong argument for the supposition that in former times there was a continuous distribution of such houses over the whole region.³² In a limited area, merely, on Vancouver island and about Puget sound, the gabled form is replaced by a shed-shaped dwelling, less elaborate in its construction. The examples of this shed form examined more than a hundred and forty years ago by Captain Cook, were, as a matter of fact, quite crude. This might suggest that the type was still evolving

at that time. The whole situation suggests very strongly that the "shed" structure is intrusive in this area, having been brought perhaps from the interior by the Salish, and modified by conditions encountered on the coast: such conditions as the previous existence there of habits of working in wood. If this is the case, the intrusive peoples have out-Heroded Herod in one matter: they gave their structures much greater size than did any other stocks of the Pacific coast. So far as that is concerned, these Salish shed-houses seem to have been the largest structures erected anywhere in the New World.

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EDITED BY F. W. HODGE



A SERIES OF PUBLICA-
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NATIVE HOUSES OF WESTERN NORTH AMERICA

BY

T. T. WATERMAN AND COLLABORATORS

NEW YORK

MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION
1921



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RATORS**

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NATIVE HOUSES OF WESTERN NORTH AMERICA

By T. T. WATERMAN AND COLLABORATORS

INTRODUCTION

THE present paper represents a survey of the literature which concerns the tribes of western North America, for passages referring to types of habitations. Four investigators joined the present writer in the enterprise: Ruth Greiner, Geraldine Coffin, Margaret Coffin, and Herbert C. Fish. The project was undertaken as part of the work of a seminar in Ethnography at the University of Washington. Mrs LeFay Davy Packard of the University of Oregon coöperated during one semester. Mr Fish was formerly Curator of the Historical Society of North Dakota, and has an intimate and somewhat extensive acquaintance with Plains tribes. The results here summarized are based largely on

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a permanent collection of books in the University of Washington, known as the Northwest Collection, assembled over a period of years by the Associate Librarian, Mr Charles Wesley Smith. The present results do not, of course, exhaust the material on the region. On the other hand, the most representative sources have been included, except a few which were not locally available. Specifically, Boas' "Tribes of the North Pacific Coast" (*Annual Archaeological Report*, Toronto, 1905) and Sartor's "Haus und Dorf . . ." (*Archiv für Anthropologie*, N. F., Band 7, Heft 2 und 3, 1908) have not been consulted. All citations in the following pages refer to a terminal bibliography.

TYPES OF DWELLINGS IN NORTH AMERICA

The use among the North American Indian tribes of various kinds of dwellings has always been recognized as presenting interesting problems. The number of different forms is very large. In a brief article on the subject "Habitations" in the *Handbook of American Indians*,¹ Cyrus Thomas men-

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tions no fewer than thirty-three types of houses, all employed in America north of Mexico; and this number could readily be increased by eight or ten additional forms. It seems possible, however, that the number of actually distinct types of structure is not so large as such a list would indicate. Thus, obvious points of resemblance can be found between forms of houses which this author mentions as independent types. To illustrate this, I have made the following tabulation, in which there are grouped those forms of houses that show obvious points of similarity. The first column supplies catch titles for the structures, while the second indicates the people by whom the structure is used.

Primitive North American habitations grouped according to similarity in construction, selected largely from Professor Thomas' article on "Habitations."

1. Structures of masonry (stone or adobe):

Cliff-dwellings	Sedentary tribes of
Pueblos	the Southwest
Kivas	

2. *Temporary shelters:*

“Plateau” type of lodge, Nez Percé framework of poles covered with mats

“Wickiups” (shelter of Paiute poles covered with brush)

3. *Houses with a permanent framework of poles, covered with bark, thatch, mats, or other light material:*

“Long-houses” Iroquois

Elongate houses with Virginia tribes bowed roofs

Palmetto houses Louisiana tribes

Hemispherical bark- Winnebago lodges (“wigwams”)

“Grass-lodges” Wichita

Conical bark-lodges Ojibwa

A-shaped lodge on piles Seminole

4. *Houses consisting of a pit, roofed with beams, covered with earth:*

Dome-shaped earth- Maidu lodges of the Sacramento valley

Semi-subterranean lodges Shushwap of the Plateau

Timber houses of the Alaska tribes
Western Eskimo

Circular pit-houses of Prehistoric people of Luna,
New Mexico, entrance at the top (described by Hough)
New Mexico

Rectangular pit-houses of Prehistoric people of eastern
the Plains, entrance at the top (described by Nebraska
Sterns)

5. Rectangular houses of planks:

Rectangular plank-houses Haida
of southern Alaska

Rectangular plank-houses Songish
of the Puget Sound
region

Rectangular plank-houses Yurok
of northern California

Such an excursion as this into the field of classification involves no detailed consideration of the construction of these houses. Yet the obvious facts of geographical distribution would suggest that the resemblance is not a mere matter of chance. Thus, a "grass-lodge" is a grass-lodge, and a "wig-

wam" is something different. Yet the fundamental idea, embodying a permanent framework of poles covered with bark, or thatch, or mats, or grass, or palmetto-leaves, characterizes both the grass-lodge and the wigwam, and a whole series of other houses besides. If the distribution of each form could be plotted on a map, the occurrences of each type would be found to run pretty well together. This might lend color to a theory that the wigwam, grass-lodge, and various other houses, go back to one fundamental type of structure, modified by various factors in various areas.

**TYPES OF HOUSES FROM THE STANDPOINT OF
DISTRIBUTION**

It is important to know in all cases whether similar houses existing in adjoining areas represent independent invention or the spreading of a concept from a common center. The purpose of the present paper is to examine the houses west of the Mississippi river from this point of view. The query thus proposed is one aspect of an old and somewhat shop-worn topic. The particu-

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lar matter of finding classifications of some kind into which North American houses will fall, is not itself a novel enterprise. Cyrus Thomas, in the article mentioned, classifies North American habitations as "communal houses" and "single dwellings." In this matter he follows Lewis H. Morgan. Nothing seems to come of this method of approach; that is, communal dwellings seem to be scattered about over the various tribes of the continent, in a more or less chance way. Wissler in his recent book goes a good deal further. He takes up, though briefly, the matter of classification, from the standpoint of resemblances in construction. He mentions the "house with the bowed roof" (Virginia), the Seminole "pile-dwelling" (Florida), the "oval dome-shaped house plastered with mud" (Arizona), and the Iroquois "long house" (Great Lakes region), as though the matter of possible relationship were lurking in his mind. His passage on houses is brief. It would be extremely interesting to know in detail what his ideas are. He certainly implies relationship (1) between the conical skin tent or

tipi of the Plains and the "conical, excavated, earth-covered lodge of the Navaho;" (2) between the plank-houses of the north Pacific coast and those of California; and (3) between the earth-covered pit-dwellings of California, those of the interior Northwest, the subterranean house of the Alaska Eskimo, and the stone houses of the Arctic east of the Mackenzie. The present paper is an effort to follow the problem along the lines pointed out by Wissler. He remarks that there are not sufficient data at hand for detailed comparisons between structures. That is undoubtedly true, for the general problem. The present contribution essays only to indicate the present state of our information concerning one area.

It may be well to remark at the outset that the keynote as regards the habitations of the western half of the continent seems to be the distribution of a peculiar type of structure, the "earth-covered pit-dwelling." Pit-dwellings are known to be of wide distribution in America. Jochelson, in a famous paper of some years ago, advanced the further conclusion that the earth-lodges of

the whole continent were derived from those of Asia,² indicating, somewhat hastily, the principal facts of their distribution. There is a good deal of additional information, some of which is listed here, which he might well have included. It seems to make his theory somewhat more persuasive. Professor Boas referred at an even earlier date to the distribution of earth-lodges.³ The evidence remains unsatisfactory to the present day, for the simple reason that the facts have never been properly recorded. For many vicinities we must depend on helter-skelter remarks, and in regard to some regions we have nothing to depend upon at all. We may, however, look at the facts, if merely for the sake of defining the problem.

Our starting-point is the fact that underground houses are in common use in north-eastern Asia. Some tribes of the extreme northeast (the Koryak and Kamchadal) have elaborate underground dwellings. They are built over a circular pit from a meter to a meter and a half deep. The roof is conical, made of poles laid horizontally. This

roof is supported in the center by four posts. The wall is double, the planks or poles extending vertically in most houses, though one series or layer may be horizontal. A square smoke-hole in the center of the roof serves as a winter doorway. The visitor descends on a log with holes cut for the feet, which serves as a ladder. A side entrance consisting of a covered passage is used in the summer, and has no interest for the present investigation. We may regard these as the principal features of the structure. Concerning the distribution in Asia of this and similar underground houses, a good deal has been said by Jochelson and others, and there is nothing to be added here. The present undertaking is to find what tribes in America have houses resembling this Asiatic structure. It is important to indicate also the nature and extent of correspondences, and to discuss the geographical position of the tribes involved. It is most convenient to take the matter up by areas. The areas which we will deal with in the present paper are as follows:

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- (1) The Aleutian islands and western Alaska.
- (2) Inland from Stikine river to San Francisco bay.
- (3) The coastal region occupied by the Tlingit, Haida, Tsimshian, Kwakiutl, and northern Salish.
- (4) Western and southern Vancouver island, Puget sound, and the coast of Washington as far south as the limit of Quilliute territory.
- (5) The Pacific coast from the Quinault habitat to Humboldt bay in northern California, inclusive.
- (6) The Southwest.
- (7) Southern California.
- (8) The Plains.

The facts concerning the houses of each area are presented in the form of tabulations, which are printed at the end of this paper. The occurrence of each structure mentioned by the authorities is indicated by a number on an accompanying map (pl. I). The dates mentioned in the tabulations are those when the observations were made

The information in many of the sources is laconic and fragmentary in the extreme.

**AREA 1. THE ALEUTIAN ISLANDS, TOGETHER
WITH WESTERN ALASKA**

It will be noted, in looking at the tabulation referring to this area, that in some cases the resemblance to our standard Asiatic house dwindles away. Thus, the only definite information about the houses of Atkinson island is that they are hemispherical (whatever that means) and earth-covered. Nothing is said of a pit. It seems that correspondences are somewhat closer in the case of those tribes that are located near Asia; for example, the Aleut. Other things being equal, this situation would fit most readily into a supposition that we have here a form of house which has spread from Asia, and undergone modification by external circumstances or by other factors. The evidence is certainly meager. Additional observations should be made among the natives of this vast region before it is too late. Given the facts as they stand, however, the idea of diffusion of one type of

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PL. II



EARTH-COVERED LODGE ON UNALASKA ISLAND

The fence was built to keep stock away

structure among these tribes is a more plausible explanation of the existing resemblances, than any other.

AREA 2. INLAND FROM STIKINE RIVER TO SAN FRANCISCO BAY

We have next to consider an area which is, on the whole, an interior region, extending southward from the mouth of Stikine river in Alaska, and approaching the coast again near San Francisco bay. Dwellings more or less suggesting our standard Asiatic type are found over this whole province. Their distribution, so far as the literature indicates it, is not continuous. Correspondence in form is in some cases slight, but in others very close, amounting almost to identity. This area nowhere touches the preceding one. It is in fact separated by a considerable gap, by the distance, that is to say, separating Kodiak island from the Ts'ets'a'ut (see map). This latter tribe have a form of dwelling which at one season of the year is entered through the smoke-hole. It is covered with bark, and is not underground. In this case the resemblance to the Asiatic

structure is certainly remote. The first genuinely underground dwelling which we encounter in traveling southeastward from Kodiak island is described in a passage referring to the Carriers, or Takulli, on Babine agency in northwestern British Columbia. "Some of them live," says Wilkes, "in excavations in the ground, which they cover with earth, leaving only an aperture in the roof, which serves both as an entrance for themselves and a vent for the smoke." From the Carrier tribe we have a more or less continuous distribution of such underground houses, extending clear to the territory of the Miwok, just north of San Francisco bay. The groups in this area for which underground houses have been reported are shown in the tabulation headed "Area 2" below.

Of the houses in this list, the Thompson River form and one of the Maidu forms are practically replicas of the Asiatic structures mentioned at the outset of this discussion. The form used by the Southern Maidu resembles the distant Asiatic house more closely than it resembles the houses used by

nearby divisions of the Maidu. It may well be remarked at this point that absolute structural identity is not to be looked for in houses. All divisions of the Maidu used semi-subterranean dwellings, of one general character. Yet the framework in the Maidu forms is put together according to quite different schemes. It would be almost absurd to assume that these structures were independently invented. Considering the hit-and-miss character of the data with which we are dealing, the demonstrated resemblances over this whole large area must be significant.

In our tabulation only four interior Salish tribes appear. Would we be justified in reaching the conclusion, on the basis of this evidence, that all the interior Salish tribes had the underground house? We would not. It is, however, a fact that all the interior Salish did have it, a statement for which Boas is authority (1890, p. 663). Probably this underground type of house is of much more common occurrence than the scattered references in the literature would

indicate. The conclusion can hardly be avoided that we are dealing with a case of diffusion, over this one definite area, at least.

A glance at the map will show that the tribes we have just referred to have a somewhat curious distribution. They extend over an elongate area which in the north strikes away from the coast, passes inland for a long distance, and returns to the coast again at San Francisco bay.

The next area for consideration is that occupied by the coast tribes of this same general region. The area we are about to consider is hemmed in by the one we have just discussed. The houses in this coastal region are quite different in many ways from those just treated; in fact, they are usually spoken of as an "entirely different" type. They differ in this, that instead of running up toward a center, forming a dome, or cone, they assume a rectangular form, with a ridge-pole. They are made, moreover, of planks, instead of from such materials as split logs, poles, brush, or thatch. In no case are they earth-covered

AREAS 3, 4, 5. RECTANGULAR PLANK-HOUSES OF THE PACIFIC COAST

Probably the first question to be settled is this: Are all the rectangular plank-houses of the coast tribes, from southern Alaska to northern California, similar; or do we find a number of types? Differences can easily be discovered as we pass from tribe to tribe along the coast. Previous observers have already broken this region into sections, each one being characterized by a peculiar form of house. Thus Boas points out, in a classical paper, that the Haida and Tlingit have houses of one type, with three roof-beams on each side of the central line, while the Tsimshian and Kwakiutl employ another style of construction, with only two such beams (Boas, *f*, 582). The Nootka and Coast Salish house is again different. Their houses assume a "shed" form, in place of the gabled construction; and have an enormous length, in some cases exceeding a thousand feet. When we cease to regard minor differences, however, the situation as regards all these types of houses

seems fairly simple. The list given below (Area 3) will indicate the distribution of the gabled form found among the Tlingit, Haida, and other northern tribes, as far south as the mainland Salish of British Columbia.

Many of the tribes in this southern area build a variety of shelters for use in different seasons of the year, or in different situations, or for various purposes. This is a matter which may be safely set aside for our present purpose. The type of house discussed in the tabulation may be regarded as the typical structure in this region.

In the area around the Straits of Juan de Fuca we encounter another type of structure. It is quite sharply variant from the one just discussed. This new type has the "shed" roof mentioned above, and is characterized by dimensions which are almost titanic. The distribution of this type is shown in the tabulation referring to Area 4.

South of the Straits of Juan de Fuca we encounter *gabled* forms, similar to those we found in Area 3 (Tlingit, Tsimshian, and neighboring tribes). Such forms are con-

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tinuously encountered in traveling southward from the Quinault until we come to the tribes about Humboldt bay in northern California. South of that point they are replaced again by other forms, particularly by conical houses of poles, covered with earth. The distribution of gabled houses over this southern half of their area of distribution is shown in the tabulation covering Area 5.

Certain conclusions are strongly suggested by these data. In the first place, the occurrence of plank-houses over this last-named region is manifestly due to diffusion. The distribution, so far as *available information* is concerned, is not continuous; but it is so nearly continuous that a hypothesis of independent invention for any given tribe would seem quite artificial. In a more general way it is noteworthy that the succession of forms from north to south, Alaska to California, is as follows: (1) gabled, (2) shed-like, (3) gabled. There are apparently a few tribes about the Straits of Juan de Fuca which employ shed forms exclusively. These tribes are the

Nootka, Makah, Quilliute, Songish, and possibly a few additional Salishan groups. North and south of these tribes, gabled and shed forms are in use, side by side, over considerable areas. There is, however, a noticeable transition, in both directions, to the use of gabled forms, which are the only forms reported from the remainder of the coast. The resemblance between the gabled houses used in the north and those used in the south is too close to be the result of accident. In the south, as in the north, such structures have ridge-poles, sometimes paired. In the central region the house has no ridge-poles, the roof slanting in one direction only. In the south, as in the north, the *end* of the house is toward the beach; in the central area one long *side* of the house parallels the beach. In the north and south there is characteristically one entrance, sometimes two (a front and a rear door). In the central area there is often a series of openings along the front side, plus at least one opening in the rear, with still other openings in the ends. The house of the central region is, on the whole, of simpler con-

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struction (I am not speaking now of size). There is historical evidence that they have improved rapidly in recent generations. Captain Cook, for example, speaks of the rudeness and the helter-skelter character of the structures he examined at Nootka sound in 1778. Such charges I have not heard made against the houses of the Tsimshian or of other northern tribes, or against the tribes of northern California. As elsewhere pointed out,⁴ the situation can be most readily explained on the assumption that an intrusive style of architecture has appeared along the coast in the central area. The facts suggest that the Salish, in migrating into their present neighborhood, brought along from the interior, possibly from the Plateau, notions of crude and limited forms of architecture. Apparently these intrusive peoples rapidly acquired the use of planks from the coast peoples, who evidently possessed, even centuries ago, a highly-developed technique in woodworking. It seems that they were more deliberate, however, in taking over the Coast form of house. This would account for the fact that they

build plank-houses which retain a peculiar form. If this assumption is true, the Nootka have meantime fallen under the influence of their Salish neighbors, borrowing from them this simpler style of architecture. On Puget sound several forms of house have been simultaneously in use: one of them the "shed" form, another a modified shed-like structure, and the third a gabled form similar to that used along Columbia river and among the tribes to the southward. The fact that so many forms were in use on Puget sound for identical purposes at one and the same time, cannot readily be accounted for.

A general similarity underlying all these structures, whatever the form of the roof, can hardly be denied. They are all made of planks, split from trees by identical methods. The rectangular form is always preserved, whatever the vagaries observable in the roof construction. Moreover, all these houses are identical in one curious feature, namely, in possessing a pit. Pits are mentioned here and there in connection with houses, over the whole area, from

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Alaska to California. Such excavations were used around Puget sound, where village-sites are in many cases marked even yet by the depressions of old house-pits.

This point is also brought out by Harlan I. Smith in his well-known paper on the Archaeology of the Gulf of Georgia and Puget Sound. "House sites are sometimes indicated in the shellheaps by an embankment surrounding a large rectangular level space. These . . . have been obliterated at older sites."⁵ Around Puget sound the native term for "village-site," *tcetca-a'lt'*, means literally a "collection of house pits" (*tca*, pit; *alt'*, house). From a comparative standpoint, the most important point about these pits is that they are of no conceivable use. No Indian has yet been seen who could advance an explanation of why his people made pits for their houses. They are of little use for protection. In all these houses the occupants sleep on a sort of shelf above the sides of the pit. In the Puget Sound area and among all the tribes to the northward, "bunks" or sleeping platforms were built

which elevated the sleepers still more. Under such conditions the "pit" becomes a character of very considerable importance in classifying structures. To put it briefly, all the facts seem to point to the conclusion that we have the whole way along this coast *one* type of house. That house is a rectangular plank structure, with a pit, modified at the central part of the region by intrusive influences.

THE POSSIBLE RELATIONS OF THE RECTANGULAR PLANK-HOUSE TO THE CONICAL PIT-DWELLING

We have discussed now two forms of habitations, one a conical earth-covered structure with a pit, the other a rectangular plank structure with a pit. The distribution of the first, or conical house, might be represented by the arc of a circle, which strikes inland from the coast in the north, trends southward, and finally comes to the coast again in northern California. The second form of house is distributed over just exactly that area where the first form is not encountered. The two types, conical

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and rectangular, are never found existing together. It would seem to be a plausible idea that the conical or "interior" type has in the coast region been changed by modification into the rectangular form. In other words, the facts would be quite readily explained on the assumption that in the coast region (possibly somewhere about the mouth of Fraser river) an original form of house became very much modified, along with the development of a highly-specialized wood-working culture. Woodworking evidently became very long ago an important and typical industry in this region, resulting in the making of boxes, dugout canoes, ceremonial objects, dishes, and planks. Wide planks are produced with relative ease in this region. This point might, by the way, be over-emphasized. The process is really an intricate and difficult one. Perhaps it would be better to say that the possibility exists of making wide and long planks, a matter which hinges on the fact that certain trees like the cedar grow to great sizes. The external situation resulted naturally, we may say, in using planks for the building of

houses. Houses made of planks are almost certain to take a rectangular form. The rectangular house of the coast region with its characteristic "pit" might be interpreted as a squared-off pit-dwelling, fashioned out of planks. The ridge-pole or gabled construction and the rectangular shape would be easily understood as secondary modifications brought about by the use of planks.

This conclusion is quite in line with facts brought to light some years ago by Harlan I. Smith. As the result of his very interesting investigations in the archeology of the region, he discovered that the archaic work in stone in the coast and the interior regions is much more similar than is the modern work of the same regions.⁶

If our present inferences are sound, an exactly parallel condition exists in regard to houses, the older styles over the whole area being much more uniform than are the recent forms.

There is other evidence that the present form of plank-house may have been preceded in the history of the area by a conical

earth-lodge entered from the top. An example is the curious tale spoken of by Boas:

A certain man's wife is stolen by the Killer-whales, and taken to their village under the sea. The fellow ties a stone to his feet in wrath and jumps overboard, determined to go to the ocean bottom and get his wife back. "Down below" he encounters an acquaintance, a Shark, who lives as a slave in the Killer-whales' house. This slave arranges with the outraged husband, that as he goes in the house-entrance with a basket of water, he will purposely stub his toe and spill the water on the fire. While the house is filled with steam, the man is to pounce upon his wife and carry her off.⁷

This incident would seem to imply that the original story-teller had in mind a subterranean dwelling, in which the entrance is directly *above* the fireplace. In the plank structures of the present day, a distance of forty feet separates the entrance from the place where the fire burns. The incident might of course be explained by the supposition that the people telling the story had immigrated into the coast region from an area where the subterranean house was in use; or that the myth itself, in whole or

in part, had been imported from such an area. Whatever the value of the myth as evidence, the presence of pits in the houses of this whole region, both along the coast and in the interior, can most readily be explained as the result of the diffusion of the idea from some one source. The distribution of these somewhat similar and apparently related types of houses is shown on the accompanying map.

PIT-STRUCTURES IN OTHER AREAS

Structures with pits are to be found in only three other localities in the whole of North America, or, for that matter, in the whole of the New World. These three vicinities are (1) the Plains; (2) the Southwest; (3) southern California. The forms differ considerably in these three areas. In the Southwest the "typical" subterranean structure is an underground ceremonial chamber, the so-called *kiva*. It has a flat roof, not a conical one, and is used almost purely for religious purposes. It is entered by a ladder through a hatchway in the ceiling. It is sometimes round, some-

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times rectangular, and its walls consist in part of masonry. In some cases it is not subterranean, but authorities seem to agree that the circular, subterranean form is the characteristic and original one.⁸

It has often been suggested that the kiva is a survival of an ancient form of dwelling. Cushing apparently made the first formal suggestion along this line. Fewkes has adopted the idea, and states it categorically as an established fact.⁹ It is interesting to note that remains of ancient underground dwellings have recently been discovered in this area by Hough. The Southwest is an area in which underground structures are certainly characteristic and important.

When we turn to the Plains region we find that underground or semi-underground structures are again very characteristic. The widely distributed earth-lodge of that region is a conical edifice of poles and logs, heavily covered with earth. It is widely distributed and frequently described. In some cases these earth-lodges are built over deep pits. Remains of dwellings com-

pletely underground have recently been reported from eastern Nebraska by Sterns. According to his description they were rectangular in outline, had a flat roof, and were entered by a ladder. It would seem, therefore, that the ancient structures of the Plains were much more similar to the ancient structures of the Southwest than are the modern ones. The geographic distribution of underground and semi-underground structures in these two areas, and in southern California, is therefore a matter of some interest. Their distribution in the Southwest is indicated schematically in the tabulation below (Area 6).

The nature and history of the earth-lodges, or *hogáns*, built by the Navaho, is a matter which might be of interest here. The facts of their distribution, however, add little light to the present discussion. They are entirely included within the area of typical pueblo and cliff-dweller structures. Wissler is inclined to view the *hogán* as a distant relative of the Plains tipi. Altogether the *hogán* is a matter which preferably may be left to one side.

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In southern California underground dwellings were reported by the first explorer along the coast, Juan de Cabrillo, and have been discussed more recently by Putnam. At the present time traces of these structures are perfectly manifest on the old shell-heaps, in the form of imposing funnel-shape depressions. The senior author of the present paper has seen them, in company with Mr Leonard Outhwaite, on Santa Cruz island. Schumacher, in digging around these sites some years ago, found some of the planks which lined the pit. Earth-dwellings occur somewhat irregularly from the Channel islands to the Colorado river, where they were used by the Mohave within the historic period. In this area, tribes which do not have earth-covered dwellings with pits invariably use at least the semi-subterranean earth-covered sweat-house, employed, to be sure, for ceremonial purposes only. This whole matter is illustrated by the table given below (Area 7).

The point of greatest interest here is the fact that the pit-structures of southern California find their closest analogues in the

Southwest. Indeed we can hardly go wrong in assuming that, in regard to pit-structures, southern California and the Southwest form one area. In southern California, as in the Southwest, pit-dwellings are part of a complex which includes the art of pottery. It is thus quite likely that the pit-structure peoples of southern California were not under the influence of their neighbors in northern California. An area absolutely without pit-structures or potsherds, recent or ancient, intervenes. There is, on the other hand, an almost continuous distribution of pit-structures, and a perfectly continuous distribution of pottery, leading from California to central Arizona. There are certain ceremonial matters also, such as a color symbolism for the four directions, and the use of religious intoxicants (specifically the jimson-weed, *Datura meteloides*) which unmistakably link these two areas. So far these areas, southern California and the Southwest, seem to stand together, without any connection to the northward. The question of pit-structures on the Plains becomes accordingly a matter of great in-

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terest. Pit-structures of a very clear type are reported from the latter area, and the well-known "earth-lodge," of very wide distribution, sometimes takes a form which could be readily described as a pit-dwelling. Cases have been reported where they contained excavations as much as six feet deep; where they had a heavy covering of earth; and where a ladder consisting of a notched log led up to a large, square smoke-hole. It is obvious that such earth-structures may have been independently invented on the Plains. The idea of pit-dwellings may, on the other hand, have passed thither from the Southwest. A third possibility, which at first glance seems somewhat forced, is that such pit-structures came into the Southwest via the Plains, from some northern source. It is very unlikely that they went the other way around the circuit, that is, down the Pacific coast, across to the Southwest, and into the Plains, because the hiatus in central California is a positive one. Such structures certainly never existed there, unless the earth-covered sweat-house is to

be regarded as a modified form of pit-dwelling.

A hasty inspection of the literature gives certain data on the distribution of pit-dwellings and "earth-lodges" in the Plains area. This matter is illustrated in a tabulation below (Area 8).

The curious fact comes to light that the well-known grass-lodge in some of its forms is built over a pit. This feature is clearly indicated in Doyle's description¹⁰ of the Wichita lodge. The pit is $1\frac{1}{2}$ feet deep in the locality he describes (Fort Sill, Oklahoma). Fuller knowledge of these lodges than we possess, including the facts of their distribution, would be necessary for a discussion of their possible relationships.

It is obvious from these imperfect data that we encounter a great many permutations of form and combinations of elements in these Plains structures. Yet one or two points obtrude themselves quite clearly. One is that the "earth-lodge" of the Plains in some of its forms is even in modern times a *bona fide* pit-dwelling. Anciently, pit-dwellings of a very thorough-going type

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existed here. A second point is that, geographically, the area does not link very clearly with either the Southwest or the Northwest area, the probability remaining that the explanation of Plains pit-dwellings is to be found in one direction or the other. The hypothesis of borrowing and modification is more plausible than the notion of independent invention. The latter assumption would imply that of all the tribes and nations in the New World, from Greenland to Cape Horn, the only groups to devise pit-structures were certain tribes living next-door to regions where pit-structures were in use.

There is a possible inference, therefore, that the Plains tribes received the earth-covered pit-dwelling from the Northwest. If that is the case, they probably passed it on to the Southwest, and through the Southwest to the peoples of southern California. The interesting fact develops now that they apparently passed it on, also, to certain tribes living in the area east of the Mississippi.

Inspection of Mr Bushnell's recent paper

AND MONOGRAPHS

on Native Villages and Village Sites east of the Mississippi brings to light several tribes in the area east of the Mississippi which possessed underground dwellings. It will be noted at once that such dwellings seem to have been widely distributed in this area. The tribes possessing underground shelters are shown in a tabulation below (Area 9). Complete citations to the original authorities will be found in Mr Bushnell's monograph.

CONCLUSION

The fairest inference from the available evidence seems to be that the pit-lodges at least of extreme western North America represent the spreading of an idea from one common center. Especially when the similarities of these structures are considered in connection with their distribution, such a conclusion seems to be strongly suggested.

It may be well to state that the data are unsatisfactory, not only for the conclusions here proposed, but for any other conclusions. It seems that the facts already in our possession give a fairly clear account of

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themselves, considering especially the limited amount of material to which appeal can now be made. There is a fair prospect that fuller information would tend to make our conclusions more plausible. That one architectural idea, namely, the erection of houses over a pit, has spread over the entire western half of the continent seems to be a fair presumption.

Whether or not the type of dwelling was ultimately derived from Asia is more doubtful. An hypothesis of Asiatic derivation seems, however, simpler than any other.

THE ALEUTIAN ISLANDS, TOGETHER WITH WESTERN ALASKA

AREA 1

TABULATIONS

Authority	Date	Features of the Structure	Description applies to:	Map
Coxe, p. 103	1787	Earth-covered pit-dwelling, entered through the smoke-hole.	Unalaska	1
Billings, p. 260	1802	Earth-covered pit-dwelling, entered through the smoke-hole.	Unalaska	1
Campbell, p. 73 Langsdorff, vol. 2, p. 32	1816 1805	Round mud house, door in top. Pit-dwelling, roof covered with earth, entrance through the smoke-hole.	Unalaska Aleutian idls.	1
Dall, p. 83	1877	Pit-dwelling, frame of whale-ribs, turf-covered, entered through roof by notched ladder.	Aleutian idls.	

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AREA 1

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Coxe, p. 149	1787	"Caves, roofed with wood, earth-covered," door at top, entered by ladder.	Aleutian ids.
Cook, vol. 2, p. 484	1784	Sloping roof of logs without side-walls, covered with sod, smoke-hole in roof, entrance at one end.	Norton sd. 2
Murdoch, p. 72	1887	Square, earth-covered house, sometimes underground, entrance by a tunnel, ridge-pole transverse to passage, whole made of fitted planks which are vertical in the walls, and run from eave to ridge-pole in the roof.	Pt Barrow 3
Tytler, p. 279	*	Hemispherical huts, earth-covered.	Atkinson id. 4

AND MONOGRAPHS

NATIVE HOUSES

AREA I—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Campbell, p. 99	1816	Underground house.	Kodiak id.	5
Bancroft, vol. 1, p. 74.	1886	Winter house square, excavated 2 ft. deep, roof of boards or poles or whale-ribs, smoke-hole. Entrance is at side. Earth-covered in some cases.	Kodiak id.	5

NOTE.—Additional authorities for Aleutian habitations may be found cited in Jochelson's work. They apparently contain no facts additional to those shown above.

INDIAN NOTES

AREA 2

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INLAND FROM STIKINE RIVER, BRITISH COLUMBIA, TO SAN FRANCISCO BAY

AND MONOGRAPHS

Authority	Date	Features of the Structure	Description applies to:	Map
Boas (d), p. 562	1895	[Description given just above.]	Ts'ets'a'ut	6
Boas (f), p. 633	1896	Underground or semi subterranean houses.	All interior Salish	
Wilkes, vol. 4, p. 451	1845	Excavated winter dwellings covered with grass and earth, aperture in roof for entrance and smoke-hole.	Carriers (Takulli)	7
Farrand, p. 826	1910	Subterranean huts.	Tsilkotin	8
Teit, pp. 192-195	1900	Circular, semi subterranean houses, entrance by ladder through smoke-hole, earth-covered, pit 1½ meter deep.	Thompson Shushwap Okanagan Lillooet	9 10 11 12

NATIVE HOUSES

AREA 2—Continued

Authority	Date	Features of the Structure	Description applies to:	Map
Curtis, vol. 8, p. 42	1911	Menstrual lodge, circular, pit, covered with earth, opening at the edge, descent by a ladder.	Nez Percé	13
Spinden, p. 68	1907			
Farrand, vol. 2, p. 66	1910	“Evidence that they used the typical underground lodge.”	Nez Percé	13
Curtis, vol. 4, pp. 4, 159	1909	Winter room underground, flat roof, opening serving as door, window, and chimney.	Yakima	14
Smith, p. 55	1910	“Sites of ancient subterranean winter houses.”	Yakima	14
Sapir, p. 918	1910	Partly underground winter house, roof of bark.	Wasco	15

INDIAN NOTES

A R E A 2						49
Abbott, vol. 6, p. 69	1857	Winter huts like beehives, pits 4 ft. deep, large sticks support roof of poles, earth-covered, entrance by a ladder through hole in roof.	Klamath	16		
Bancroft, v. 1, p. 334	1886	Conical house, earth-covered, pit 5 ft. deep, entrance through smoke-hole, notched log for ladder.	Klamath	16		
Powers, p. 225	1877	Structure of poles, braced with posts, earth-covered, pit, opening at top, reached by center pole.	Modoc	17		
A N D M O N O G R A P H S						

NATIVE HOUSES

AREA 2—Continued

Authority	Date	Features of the Structure	Description applies to:	Map
Dixon, 169, 172	Pp. 168, 172	Framework of poles, covered with bark or pine-needles and $\frac{1}{4}$ meter of earth, pit 1 meter deep, 12 meters in diameter, two main posts, entrance formerly through smoke-hole, ladder of two poles with cross-pieces, three center posts, wall-beams horizontal.	NW. Maidu NE. Maidu	19 20
Dixon, p. 172		Four center posts, wall-beams run toward the center.	S. Maidu	21

INDIAN NOTES

/ AREA 2

Powers, p. 221	1877	Earth-covered dome-shaped, pit 2 ft. deep.	Patwin	22		
Powers, p. 128 Kroeber (in press)	1877	Dome-shaped assembly hall, earth-covered. Dwelling-house formerly of typical underground construction.	Yuki	23		
Powers, p. 159	1877	Assembly house, cone-shaped, pit 63 ft. in diameter, 6 ft. deep, earth-covered, five central posts.	Pomo	24		
Powers, p. 167	1877	Assembly hall earth-covered, pit 4 or 5 ft. deep, entrance by tunnel at one side.	Yokaia	25		
Powers, p. 35	1877	Winter-house of poles and brush, earth-covered.	Miwok	26		
AND MONOGRAPHS						51

AREA 2—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Drake, p. 321	1578	Houses “digged round about with earth, and have from the uttermost brimmes of the circle clifts of wood set upon them, joyning close together at the toppe like a spire steeple . . . Their bed is on the ground . . . and lying about the house, they have the fire in the middest.”	Coast of Marin county, Calif.	27

INDIAN NOTES

AREA 3

TINGIT, HADA, TSMISHIAN, KWAKIUTL, NORTHERN SALISH

Authority	Date	Features of the Structure	Description applies to:	Map
La Perouse, vol. 2, p. 120	1798	A-shaped shelter, 25 x 15 ft., covered only to windward, planks run toward ridge-pole. Planks were transported from place to place.	Tribe s.e. of Mount Saint Elias	28
Portlock, p. 292	1789	Shelter made of a few planks, transported from place to place.	Prince William sd.	29
Shotridge, pp. 86-89	1913	Rectangular house, gabled, wall-planks horizontal in rear and at sides, vertical in front, doorway in front end, smoke-hole sometimes protected by wind-breaks, deep pit.	Chilkat	30

AND MONOGRAPHS

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NATIVE HOUSES

AREA 3—Continued

Authority	Date	Features of the Structure	Description applies to:	Map
Langsdorff, vol. 2, p. 110	1814	Gabled house, ridge-pole, entrance in gable end, wall-planks horizontal, bark roof.	Tlingit (Sitka)	30
Bancroft, vol. 1, p. 160	1886	House 50 ft. square, two ridge-poles, pit 10 ft. deep.	Haida	31
Swanton, pp. 283, 284, 290, pls. 4, 10, 12	1909	Gabled house, wall-planks vertical, roof-planks transverse, door in gable end, pits, wall-planks vertical, pit 12 ft. deep.	Haida	31
Collison, pp. 88, 104 (photos)	1916	Wall-planks vertical, pit 12 ft. deep.	Haida	31
Niblack, p. 306, pl. 35	1888	Gabled house, wall-planks vertical, roof-planks transverse, pit (sometimes in several "steps").	Haida	31
Boas (f), p. 580	1896	Square gabled house, ridge-pole, wall-planks horizontal, roof-planks transverse, tip.	Tsimshian Kwakiutl	32 33

INDIAN NOTES

Boas (g), Pl. 30'	1909	ping smoke-hole cover, entrance in one end, rear end of house "on ground," front end on a "built up" platform. Gabled house, ridge-pole, wall-planks sometimes vertical, sometimes horizontal, roof-planks transverse, pit.	Tsimshian	32
Boas (b), p. 197	1889	Square gabled house, ridge-pole, wall-planks vertical, roof-planks transverse, door in end, pit in steps, "like amphitheater."	Kwakiutl, Fort Rupert	33
Boas (e), pp. 367-370	1895	Square house, gabled, door-way in end, wall-planks vertical, roof-planks transverse. No pit (excavation), but the center of the house is surrounded by a high embankment of earth.	Kwakiutl	33

NATIVE HOUSES

AREA 3—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Boas (c), p. 801	1890	Gabled house, wall-planks horizontal, pit in "steps" like amphitheater.	Northern Salish	34
Curtis, vol. 9, p. 48	1913	Rectangular house, gabled, wall-planks vertical, roof-planks transverse.	Northerly Salish of Vancouver id.	34
Hill-Tout, pl. 9, 10 (photos)	1907	Some houses have vertical wall-planks, some have horizontal. Some houses are gabled, some are of shed form. Entrance in the gabled form is at one end. No mention of pits.	Mainland Salish, northern British Columbia	35

INDIAN NOTES

AREA 4

WESTERN AND SOUTHERN VANCOUVER ISLAND, PUGET SOUND, THE COAST OF
WASHINGTON AS FAR SOUTH AS THE LIMIT OF QUILTUKE TERRITORY

AREA 4

Authority	Date	Features of the Structure	Description applies to:	Map
Cook, vol. 2, p. 314	1778	Shed roof, wall-planks horizontal, entrance through "chance" openings, move plank to make smoke-hole, no mention of pits.	Nootka	36
Jewitt, p. 99	1896	Wall-planks horizontal, doorway in side-wall.	Nootka	36
Meares, vol. 1, p. 222	1788	House of vast size, square, 20 ft. high, planks wide and long, enormous posts, 3 rafters, move plank to make smoke-hole.	Near Nootka sd.	36
Boas (b), p. 801	1889	House with shed roof.	Salish	

AND MONOGRAPHS

NATIVE HOUSES

AREA 4—Continued

Authority	Date	Features of the Structure	Description applies to:	Map
Fraser, p. 193	1808	House with shed roof, wall planks horizontal, permanent smoke-hole.	Lower Fraser	37
Boas (c), p. 562	1890	House with shed roof, wall planks horizontal, doorway in side wall, front wall lower.	Songish	38
Eells, p. 605	1887	House with shed roof, wall planks horizontal, doorway in side-wall, move plank for escape of smoke.	Twana Chemakum Clallam	39 40 41
Gibbs (a), p. 402	1855	House 18 by 30 ft., built of heavy planks, which are guttered, slope toward one end, lined with mats.	Clallam	41

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AREA 4

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Calkins, p. 791	1911	House with shed roof, wall-planks horizontal.	Makah	42
Swan (a), p. 4	1855	House with shed roof, wall-planks horizontal, roof planks overlap.	Makah	42
Wickersham (b), p. 21	1896	Houses built end to end; one side is higher than the other, giving slight inclination to the roof.	Makah	42
Curtis, vol. 9, p. 147	1913	House with shed roof, wall-planks horizontal, pit.	Quillilitute	43
Gibbs (b), p. 157	1876	House with shed roof.	Puget Sound	44
Curtis, vol. 9, pp. 45, 147	1913	House with shed roof, wall-planks.	Puget Sound	44
Waterman	1920	House with shed roof, wall-planks horizontal, roof-planks transverse, plank moved for escape of smoke, doorway in side-wall, pit.	Puget Sound	44

AND MONOGRAPHS

NATIVE HOUSES

AREA 4—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Vancouver, p. 123	1792	"Houses like those of Nootka Sound."	Puget Sound	44
Wickersham (a), P. 47	1893	House set in the ground 2 ft. or more.	Puget Sound	44
Costello, p. 19	1895	Houses have shed roof.	Puget Sound	44

INDIAN NOTES

AREA 5

PACIFIC COAST FROM THE QUINNAULT TRIBE IN WESTERN WASHINGTON TO HUMBOLDT BAY IN NORTHERN CALIFORNIA

Authority	Date	Features of the Structure	Description applies to:	Map
Swan, p. 263	1857	Gabled house, "like Chehalis houses."	Quinault	45
Swan, p. 32	1857	Gabled house, wall-planks horizontal, roof-planks transverse to ridge-pole; sketch shows European window.	Chehalis	46
Swan, pp. 331, 339	1857	Gabled house, wall-planks vertical.	Probably Chehalis	
Work, vol. 3, p. 206	1824	Gabled house, wall-planks vertical, space all the way along ridge for the escape of smoke.	Chehalis	46

AND MONOGRAPHS

NATIVE HOUSES

AREA 5—Continued

Authority	Date	Features of the Structure	Description applies to:	Map
Curtis, vol. 9, pp. 45-58, 157 Gibbs, p. 215	1913	Gabled house, wall-planks vertical, door in side-wall [<i>sic</i>], move plank for escape of smoke.	Chehalis	46
Swan, p. 110	1857	Gabled house, pit 1 ft. deep two tiers of bunks around walls.	Chinook	47
		Gabled house, vertical wall-planks support ridge-pole with help of additional posts, roof-planks horizontal with edges overlapping, doorway is round hole at end of house, move plank for escape of smoke, wooden platform and bunks around walls.	Chinook	47

INDIAN NOTES

AREA 5

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Lewis and Clark, vol. 3, p. 152	1805	Gabled (?) house, 20 x 20 ft. pit 8 ft. deep, covered with bark, small round door "at top" [sic].	Lower Colum- bia
Lewis and Clark, vol. 3, p. 356	1805	Gabled house, 20 x 60, wall- planks vertical, pit 4 ft. deep, enter through small door and down a ladder, bunks around walls.	Clatsop 48
Victor, p. 125	1832	Gabled house, 40 x 100, wall- beams horizontal, one ridge- pole which is supported by center posts, low oval door, pit 3 ft. deep, flight of steps [sic].	Columbia river
Bancroft, vol. 1, p. 231	1886	Gabled house, 25 x 75, wall- planks sometimes vertical, sometimes horizontal, two central posts, four corner posts, ridge-pole.	Chinook 47

AND MONOGRAPHS

AREA 5—Continued

Authority	Date	Features of the Structure	Description applies to:	Map
Hale, vol. 6, pp. 201, 216, 217 Irving, pp. 71, 206	1838— 1842	Oblong house, double tiers of bunks.	Chinook	47
	1812	Gabled house, pit 6 feet deep, doorway in gable end, ladder, sleeping-places ranged along walls around part of house, remainder of space for storing food.	Wishram	49
Kelley, p. 71	1830	Gabled house, ridge-pole 2 or 3 ft. in diameter, rests on posts, roof made of bark, doorway cut through a plank, large opening in roof for escape of smoke.	Oregon tribes	

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AREA 5

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Sapir, vol. 2, p. 674	1910	Quadrangular house, partly underground, smoke-hole, entrance by a ladder. House-pits mentioned.	Takelma	50
Schumacher, p. 356	1877	House-pits	Pistol river	51
Mrs. Lucy Thompson, pp. 32-35	1916	Gabled house, pit 5 ft. deep, wall-planks vertical, way in end of house, paired ridge-poles, "four posts support roof," notched log for ladder, move plank for escape of smoke.	Yurok	53
Waterman (in press)		Gabled house, 18 x 30, pit 4 or 5 ft. deep, wall-planks vertical supporting pair of ridge-poles, roof-planks transverse to ridge-pole, entrance by hole through plank, notched log for ladder, move plank for escape of smoke.	Yurok	53

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NATIVE HOUSES

AREA 5—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Powers, p. 45	1877	House with "flattish" roof, wall-planks vertical, pit 4 or 5 ft. deep, round hole in plank for doorway, sleep above edges of pit.	Tolowa Yurok Karok	52 53 54
Bodega, quoted by Loud, p. 243	1775	Square house, pit 2 ft. deep, circular hole for doorway, "roof no higher than surface of the ground."	Yurok	53
Vancouver, p. 244	1793	Gabled house, wall-planks vertical, entrance through round hole, "house on level with the ground."	Yurok	54

INDIAN NOTES

AREA 5				67
Goddard	1903	House nearly square, 20 x 20, pit 5 ft. deep, wall-planks vertical, entrance in end of house through round hole in plank, roof-board pushed aside for escape of smoke.	Hupa	55
Dixon, p. 413	1907	Dance house, entrance through hole, down a notched ladder.	Shasta	56
AND MONOGRAPHS				

AREA 6
THE SOUTHWEST

Authority	Date	Features of the Structure	Description applies to:	Map
Goddard (b), p. 30	1913	Kivas for the greater part circular and underground, entered by hatchways through the roof.	"All large ruins,"	—
Hodge	1907	Kivas invariably entered by hatchway.	Entire Southwest	—
Judd, p. 6	1919	Houses of adobe, with entrance through the roof.	Paragonah, Utah	57
Nordenskiöld	1893	Kivas circular and subterranean.	Mesa Verde	58
Mindeleff, V., p. 111	1886	Ancient kivas round, wholly subterranean, entered from above.	Hopi	59
Hodge	1907	Kivas wholly or partly underground.	Hopi	59

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AREA 6						69
Hodge Hodge	1907 1907	Kivas partly subterranean. Rectangular kivas.	Zufi Zuni Hopi	60 60 59		
Fewkes (a), p. 23	1911	Circular kivas are limited to Mesa Verde, San Juan drainage, Chaco cañon, Navaho Monument, Cañon de Chelly, many of the Rio Grande pueblos, Utah. Rectangular kivas are found in prehistoric Hopi sites, modern Snake kiva in Hopi, and in Zufi.	North of Marsh pass			
Fewkes (b), p. 26 Colton, p. 126	1911 1908	At "Old Caves" there are rooms entered by hatchways from overhead. Traces of underground chambers, circular; may be remains of "hogáns."	South of Marsh pass	Flagstaff, Ariz.	61 61	
AND MONOGRAPHS						

NATIVE HOUSES

AREA 6—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Hough, p. 415	1905	Pit-dwellings, rectangular, entered by smoke-hole.	Luna, N. Mex.	62
Hodge	1907	Kivas are underground, either square or round.	Rio Grande pueblos.	63

NOTE.—Numerous and well-known authorities are available on the subject of kivas, but they add nothing to the facts of *distribution* indicated above.

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AREA 7

SOUTHERN CALIFORNIA

Authority	Date	Features of the Structure	Description applies to:	Map
Cabrillo, p. 311	1542	Fifty souls lived in each house.	Channel islands	64
Schumacher, p. 353	1877	House-pits lined with boards.	Santa Cruz id.	64
Cabrillo, p. 306	1542	"Houses like those of New Spain."	Coast near Santa Barbara	65
Putnam, p. 76	1879	Conical houses, built over a pit, roof of rushes and earth, entrance through smoke-hole, or through doorway on level with the ground.	Southern California	66
Kroeber (in press)		Semi-subterranean sweat-house.	Gabrieliño	

AND MONOGRAPHS

NATIVE HOUSES

AREA 7—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Kroeber (in press)		Pit-structure, conical roof; earth-covered, not entered through roof. Elliptical house, gabled, earth-covered.	Luiseno	67
Kroeber (in press)		Semi-subterranean sweat-house, earth-covered.	Diegueño	68
Kroeber (in press)		Rectangular house, four posts in center, covered with earth, dome-shaped, doorway in front wall, which is vertical.	Cahuilla	69
Kroeber (in press)			Mohave	70

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AREA 8
THE PLAINS

AREA 8

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Authority	Date	Features of the Structure	Description applies to:	Map
Will, George F. Henry, vol. 1, pp. 338, 348	Letter 1806	Smoke-hole used as entrance only on special and rare occasions. Circular house, diameter 90 ft., pit 1½ ft. deep, fireplace 5 ft. square, excavated 2 additional feet, 4 central posts, 15 ft. high, framework of poles, thatched with willows, earth-covering 4 ft. thick in walls, 1 ft. thick on roof, door of rawhide on frame, passage 10 ft. long, smoke-hole 4 ft. square. In Hidatsa lodge pit is 4 ft. deep.	Hidatsa Mandan	71 72

AND MONOGRAPHS

NATIVE HOUSES

Authority	Date	Features of the Structure	Description applies to:	Map
Lewis and Clark, vol. 1, pp. 208, etc.	1803	Circular house, diameter 30 or 40 ft., framework of posts and poles, covered with will- ow branches, grass, and mud; passage 10 ft. long. Earth-lodge 100 ft. in diam- eter, pit 4 ft. deep, 8 or 10 center posts, notched log for ladder served for climbing to roof outside.	Hidatsa Mandan Amahami Arikara Ponka Omaha	71 72 73 74 75 76
Dorsey, pp. 269, 271	1891			
Bradbury, p. 78	1809	“Lodges constructed like those of the Oto” (see below), ex- cept that they have an addi- tional railing at the eaves. Its purpose is to catch the earth which rolls from the roof.	Mandan Arikara	72 74

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AREA 8

				75
Doyle, p. 462	1876	Subterranean lodge, 8 ft. in diameter, neatly lined with grass and buffalo-ropes, entrance from above, at one side of house; each house inhabited by one family. Quoting information dated 1825.	Pawnee 77	
Clark, p. 115	1885	Circular houses of posts and poles, 25 to 56 ft. in diameter, covered with willow withes, sodded to depth of 9 in. on roof, thicker on other parts, passageway, fire in center, smoke-hole.	Pawnee Arikara 74	
Sterns, p. 135	1914	Traces of subterranean houses, rectangular, entered by a ladder.	E. Nebraska 78	
AND MONOGRAPHS				

NATIVE HOUSES

AREA 8—Concluded

Authority	Date	Features of the Structure	Description applies to:	Map
Bradbury, p. 78	1809	Circular house, earth-covered, 40 ft. in diameter, pit 3 ft. deep; in center of house a circular space is dug, 8 ft. in diameter and 2 ft. deep; people sit here around the fire; small smoke-hole.	Oto	79
James, vol. 1, p. 189	1819	Hemispherical house, pit 1 to 3 ft. deep, framework of poles and logs covered with grass and earth, smoke-hole.	Kansa	79
Fletcher, vol. 1, p. 410 Doyle, p. 463	1907 1876	Earth-lodge, pit 2 to 4 ft. deep, very much as described above. Habitations in the form of holes in the ground.	Osage Kiowa	81 82

NOTE.—A number of famous authorities, in addition to the ones here listed, give information on earth-lodges, but they indicate no additional features.¹¹

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AREA 9
PIT-DWELLINGS EAST OF THE MISSISSIPPI AS GIVEN BY BUSHNELL

Original Authority	Date	See Bushnell	Features of the Structure	Tribe
Adair, James	1775	pp. 69, 70	Circular house; central support consists of four posts in quadrangular form; house is built over a pit; entrance from side by a winding passage.	Chickasaw
Le Moyne, Jacobo	1591	p. 90	"The chief's dwelling . . . is partly underground in consequence of the sun's heat."	Timucua
Moore, Clar- ence B. Evans, R. B. Tonti	1915 1881 1682	p. 98 p. 609 p. 99	Mention of house-pits. Mention of house-pits. Houses placed in divers rows, all made of earth.	Tennessee river Kentucky Louisiana

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